JOURNAL OF THE

AMERICAN INSTITUTE OF ARCHITECTS

Vol. V JULY, 1917 Number 7

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Shadows and Straws

TO THOSE WHO SEEK in terms of common understanding the relation of life to art, and, more especially of the relation of architecture to things social, economic, political; to those who would penetrate that ceaseless interplay of evolutionary forces and reach the source of that perpetual unrest which makes us wonder in what manner there shall be born an architectural development in this country such as shall justify our hopes and reward our labors; to those who can see beyond our crude democracy, vision the ultimate ripening of its liberative forces, and their reaction upon art in all forms; to those—and only to those—there may lie some precious clues in the following paragraphs from an address by Felix Adler, recently published in *The Standard:*

"To be free is to express power. To be free in the highest sense is to express the highest kind of power. The highest kind is that which is exercised in such a way as to bring to the birth unlike yet cognate power in others. The teacher is spiritually free, not when he transmits a certain stock of knowledge, or a hard and fast system of ideas, but when he quickens in his hearers new thought, gives them the incentive to extend their intellectual horizon beyond his own.

"The captain of industry is free in the best sense not when he organizes processes, but when he organizes his human relations to his workers. He is free when he educates them, infinitely patient with their shortcomings, remembering out of what black pits of poverty many of them have come. He is free when he, the captain of industry, becomes himself a labor leader, instead of leaving the function of leadership to the walking delegate. He is free when he not only shares his profits with the workers, but does his utmost so to change the conditions of work as to encourage the exercise of independent thinking on the part of the tool-user. Above all when he liberates the moral will of the worker by giving him a share in the direction of the industry, in the shaping of policies, in the enactment of rules. For as long as the worker is compelled to obey the arbitrary commands of a superior, he is to that extent in a state of moral servitude. Political democracy and industrial autocracy cannot permanently exist side by side. A house thus divided against itself cannot in the long run stand.

"And you, American artist, when are you free? Is it when you produce the things that give pleasure to the beholder? Is pleasure the be all and end all of your art? Or is it when you shall so penetrate the mind of the American people as to express their artistic response to life so distinctively and articulately that they will acknowledge your creation as their very own?

"And a people is a free people when all the different social groups or vocational groups of which it is the integrated whole express themselves in this manner, mutually reacting upon one another, and when in each group every member of it shall realize some mental gift unlike the rest. A free people is not one which is released from the incubus of autocrats. That is only the first step. A free people is not one in which strong individuals thrive parasitically at the expense of the weak. It is not one in which merely equal opportunity is afforded to all in the race for material well-being. A free people is one in which the inmost gifts, even of the lowliest, are released, in which the deepest, noblest energies of all circulate unhindered enriching as they go out, enriched as they return,—the life of each swelling the surrounding tide of life, and lifted up by the refluence of the tide. This, as I conceive it, is liberty, the liberation of what is best in each. This is freedom, the free flow of life into life. This is ideal democracy."

THE INTERNATIONAL CONGRESS of Architects was to have been held in Petrograd in the spring of 1915. It gave great promise of being the most interesting of events, when the war intervened and ended all plans.

In December, 1916, a small group of Institute members addressed a message to Monsieur J. M. Poupinel, the able and devoted Secretary of the Permanent Committee of the International Congress, at Paris, in which they

expressed their appreciation of the enjoyment they had derived from the several congresses held during the past, and in which they also ventured the hope that a speedy termination of the war might clear the way for another reunion of the delegates representing the component parts of the Congress.

In reply to this message there has been received through Mr. George Oakley Totten, Jr., Secretary of the American Section of the Congress, the letter which here follows:

Paris, le 31 Mars, 1917.

*Messieurs et éminents Confrères,

Nous avons éprouvé une réelle émotion en lisant dans votre lettre du 6 Décembre 1916 votre satisfaction lorsque vous évoquez les souvenirs de vos différents séjours en Europe et de l'accueil que vous avez toujours reçu de vos confrères et amis de France, la République-Sœur.

Votre juste appréciation des efforts de la France, de ses sanglants sacrifices et de son énergie à défendre la Civilisation et l'Humanité contre la barbarie nous touche profondément; elle nous encourage dans notre lutte pour le Droit et la Justice égale pour les grandes comme pour les petites nations.

Les Etats-Unis d'Amérique devaient comprendre ces nobles sentiments; ils l'ont prouvé dès le début par l'ampleur de leur beau geste en faveur des innocentes victimes de cette guerre cruelle et perverse, par leur persévérante générosité pour les humbles en détresse.

De cela nous vous garderons une gratitude éternelle.

Mais quand avec la Victoire triompheront le Droit, la Justice, la Loyauté; lorsque nous serons à la veille de reprendre nos paisibles travaux, n'aurons-nous pas à juger si ceux qui ont transformé tant de merveilles en des monceaux de ruines sont dignes de rester parmi nous qui nous sommes donné la tâche d'entretenir avec un soin jaloux et d'accroitre le Patrimoine artistique de l'Humanité?

Puissions-nous, comme vous le souhaitez, nous réunir encore bientôt et entre amis comprenant la Civilisation de la même façon, pour étudier et résoudre ensemble les problèmes de notre Art si cruellement outragé par nos ennemis mais si noblement et passionément aimé de vos amis et compagnons de travail soussignés.

CHARLES GIRAULT, Membre de l'Institut, Membre du Conseil Supérieur des Beaux-Arts, Membre du Conseil général des Batiments civils, Membre de la Commission des Monuments historiques, Inspecteur général des Batiments civils et Palais nationaux, Professeur libre d'Architecture.

JEAN LOUIS PASCAL, Membre de l'Institut [1890], Vice-Président du Conseil général des Batiments civils, Membre de la Commission des Monuments historiques, Membre du Conseil Supérieur de l'Ecole des Beaux-Arts, Inspecteur général des Batiments civils et Palais nationaux, Professeur libre d'Architecture.

LOUIS BONNIER, Inspecteur général des Services techniques et de l'esthétique de la Prefecture de la Seine, Membre du Conseil d'Hygiène publique de la Prefecture de Police.

J. MAURICE POUPINEL, Vice-Président de l'Association littéraire et artistique internationale, Secrétaire général du Congrés internationale d'Architectes, 1897–1900–1904–1906–1911.

CHARLES NIZET, Architecte honoraire de la ville de Paris, Membre du Conseil des Travaux d'Architecture de Paris et du departement de la Seine, Architecte des Edifices diocésains.

H. P. NENOT, (empeché par la maladie), Membre de l'Institut, Membre du Conseil Supérieur de l'Ecole des Beaux-Arts, Inspecteur général des Batiments civils, Vice-Président du Conseil d'Architecture de la ville de Paris.

VICTOR BLAVETTE, Architecte des Batiments civils, Professeur de la Théorie de l'Architecture à l'Ecole des Beaux-Arts.

VICTOR LALOUX, Membre de l'Institut, Inspecteur général des Batiments civils, Professeur, Chef d'Atelier d'Architecture à l'Ecole des Beaux-Arts.

LOUIS BERNIER, Membre de l'Institut [1898], Membre du Conseil des Batiments civils, Architecte de l'Ecole des Beaux-Arts, Professeur libre d'Architecture.

ALFRED BESNARD, Expert au Tribunal de la Seine, Maire de XVIII^e Arrondissement de Paris.

*The letter was addressed to those who signed the letter of December 6, 1916, as follows: Messrs. J. L. Mauran, I. K. Pond, W. B. Ittner, R. Philipp, A. D. F. Hamlin, Albert Kelsey, B. F. Willis, G. D. Mason, W. L. Plack, F. A. Russell, E. W. Donn, Jr., G. O. Totten, Jr. A translation is appended:

"We have felt a real emotion in reading in your letter of December 6, 1916, the satisfaction with which you evoke the memories of your different sojourns in Europe and the reception you have always enjoyed at the hands of your confrères and friends in France, the Sister Republic.

"Your just appreciation of the efforts of France, of her bloody sacrifices and of her energy in defending Civilization and Humanity against barbarism touch us profoundly; it encourages us in our struggle for Right and Justice equally for the large as for the small nations.

"The United States of America should understand these sentiments; they have proved that by the amplitude of their sympathy toward the innocent victims of this cruel and perverse war, by their persevering generosity to the humble in distress.

"Of these things we cherish an eternal gratitude.

"But when Victory shall have triumphed with Right, Justice, Loyalty; when we shall again resume our peaceful labors, shall we not have to judge whether those who have transformed so many marvels of beauty into the fragments of ruins are still worthy of a place among us who have set ourselves the task of jealously guarding and increasing Humanity's patrimony of art?

"May we, as you hope, soon reunite and, as friends understanding civilization in the same manner, study together in an effort to solve the problems of our art which has been so cruelly outraged by our enemies and so nobly and passionately loved by your friends and companions signing this letter."

IN THE STUDY OF city planning from a very elementary standpoint the members of a New York City high school class were asked to write a brief article on their city. Of those submitted, the following strikes such a human note that we think it could be accepted as evidence that students of educational methods might gain some valuable insight by encouraging a fearless expression of opinion from those who form the subject of their experiments. It also offers stout support for the theory that a knowledge of what does or does not produce good architecture is more closely related to the questionings of youthful minds than to the endeavor later to engraft the missing bud by means of a lecture-course at college.

"I have tried to reëstablish New York City in the most practical way I could, but I see now that I am, as most high school students are, quite ignorant of the vital construction of the city. We know high and impressive buildings of offices are in lower Manhattan; we know quite a good deal about the man-made palisades on our side of the river, along the rural Riverside Drive (nature manifests itself in fits and starts in our town) and also we know where Central Park and Houston Street are, but there our puny knowledge ends.

"How can anyone who has spent one's life being present in an English class, riding three subways, eating, reading monotonous Shakespearian plays, and attending birthday parties occasionally—how can they be expected to say anything about the construction of a tremendous institution that has them crawling on it in one little corner, like so many fleas behind the ear of a dog.

"So far I need no apologies, for it is facts that I state. But what I need to apologize for is our neglect of being fit to talk about the construction of this tremendous institution which is composed of many millions of people who attend birthday parties.

"What logic is there in a department of a school giving a bunch of ——— a problem for which they have never been prepared? Do you think there will be a response worthy of even the poorest sort of factory hand, or the "runtiest" little bartender in the most filthy saloon past the bridge? Believe me, there won't. We're a group of the most unoriginal liars, though we don't mean to be. All we can say about our city, outside of a few quotations from some socialistic novel we read, or an economic essay in a newspaper, is a lot of drivel ——— we're students.

"Why aren't we sent on errands to the offices, why aren't we encouraged to go down to the Bowery or the East Side and have some duty to perform there, why haven't we ever stayed all night in some shack by the docks, where we can see the loneliness of our city at night and the almost inhuman vigor in the daytime? Why don't those people who are controlling us, if they must control, make us boys and girls of heart and guts and soul? Until this is done, don't give us municipal problems (to be answered) about which we know nothing; it annoys us very much."

The War Department's Cantonment Plans

There will be sixteen cantonments constructed in various parts of the country.

These camps will each consist of one division, plus certain additional units, and will aggregate from 35,000 to 45,000 men in each case. A division consists of 9 infantry regiments, divided into 3 brigades, 1 brigade of light artillery, consisting of 3 regiments, 1 regiment of cavalry which will be organized like an infantry regiment, 1 regiment of engineers, 1 aëro squadron and 1 field signal battalion. The additional units will vary at the different camps and will consist of heavy artillery regiments, additional infantry regiments, balloon companies and field telegraph battalions. Infantry regiments are composed of 12 companies at 200 men each, 1 machine gun company of 200 men, and smaller organizations, known as headquarters and supply companies and medical detachments, attached to the regiments. Artillery regiments are made up of 6 batteries, each with headquarters and supply companies, and engineer regiments are made of 6 companies with headquarters and supply companies. The battery consists of 190 men. The engineer company consists of 164 men.

The barracks for companies and batteries will be two stories in height, with the mess hall and kitchen located on the first floor, and with dormitories on the balance of the first floor and the second floor. Small detachments will be housed in one-story barracks, as will the officers. The officers for a regiment are housed in groups, depending on the size of the organization, which means that from 8 to 15 officers will be in each building.

It is the intention of the Government to erect, as soon as funds become available, a post exchange building for the use of each regiment, which will contain a small restaurant and a small store for the sale of small wares, soda-water, ice-cream, etc.

The Y. M. C. A. is providing for the use of each regiment an assembly building, where men will be provided with writing materials, magazines and books, and where religious meetings, entertainments, and lectures will be given. The Y. M. C. A. is also planning to provide in connection with each division cantonment a large auditorium or assembly hall where more extensive entertainments, religious services, etc., can be held.

The construction of stables for the requisite horses and mules will be started as soon as the construction of the necessary buildings for housing the men has been completed. Stables are, in general, placed in the rear of the living quarters, and, so far as possible, in the direction away from the prevailing summer winds, so that such flies as may develop will be blown away from and not into the quarters of the men.

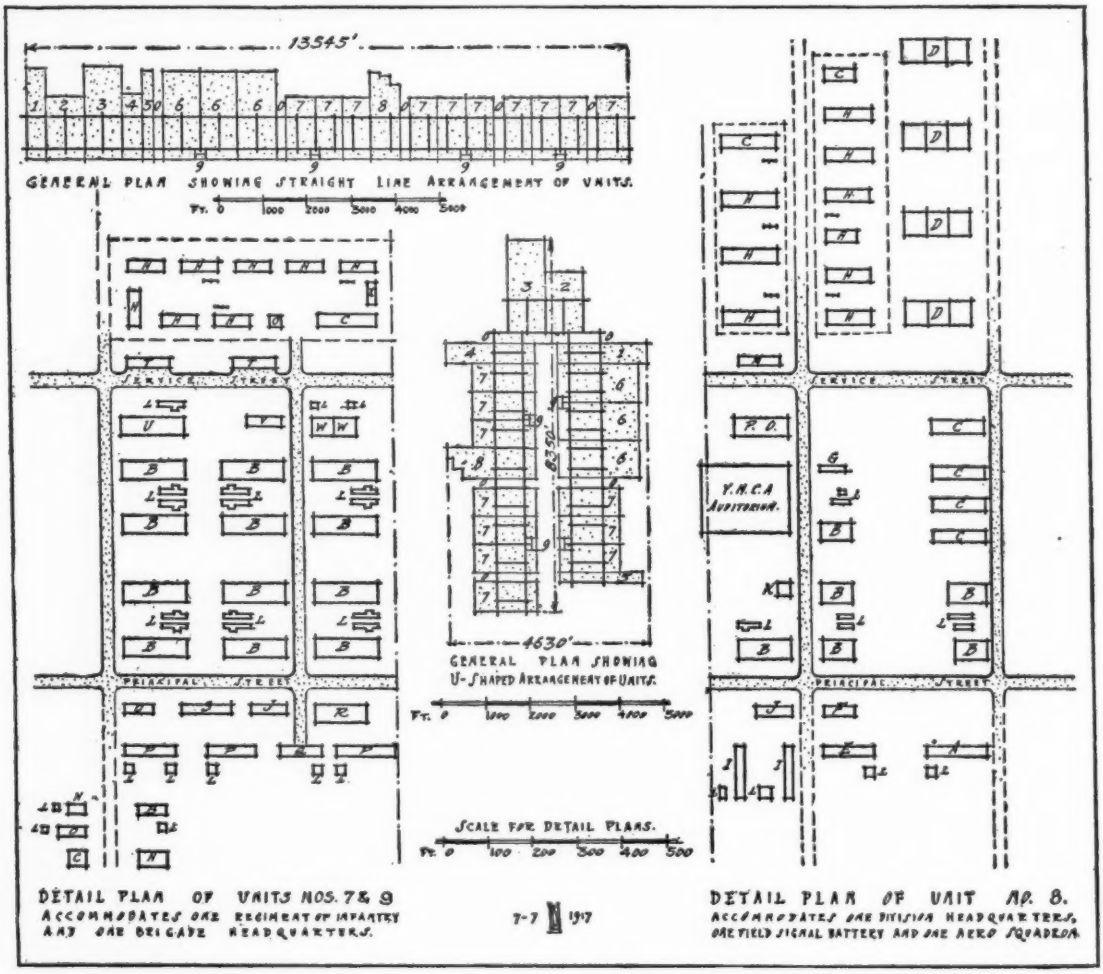
The Quartermaster's Department in providing quarters for troops on the Mexican border had worked up a system of houses consisting entirely of one-story buildings. In completing plans for the present cantonments the fact developed that this arrangement would require too much ground-space, and, coupled with the fact that the various units had been largely increased in size, made it necessary to adopt the two-story barracks in the interest of economy.

Lavatories will be provided for each organization, fitted with shower-baths and other necessary fixtures. The shower-baths will be provided with hot and cold water, and, in general, the toilet facilities will be practically as good as would be provided in connection with permanent barracks at army posts.

The hospital plant in each case will be placed to the best advantage under the conditions of each group, and the location is not determined by the typical layouts.

The buildings are all constructed substantially with frames of wooden studding and covered with boards. The windows are of good size and ample in number.

It is difficult to grasp the great scale of these cantonments. They will occupy from 900 to 1,200 acres each, and when the units are arranged in one straight line, as


13545'
GENERAL PLAN SHOWING STRAIGHT LINE ARRANGEMENT OF UNITS.
Ft. 0 1000 2000 3000 4000 5000
4630'
GENERAL PLAN SHOWING U-SHAPED ARRANGEMENT OF UNITS.
Ft. 0 100 200 300 400 500
SCALE FOR DETAIL PLANS.
Ft. 0 100 200 300 400 500
SERVICE STREET
PRINCIPAL STREET
Y.M.C.A. AUDITORIUM
P.O.
DETAIL PLAN OF UNITS NOS. 7 & 9
ACCOMMODATES ONE REGIMENT OF INFANTRY AND ONE BRIGADE HEADQUARTERS.
7-7 1917
DETAIL PLAN OF UNIT NO. 8.
ACCOMMODATES ONE DIVISION HEADQUARTERS, ONE FIELD SIGNAL BATTERY AND ONE AERO SQUADRON.

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S. Medical Department.
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U. Machine Gun Company.
V. Post Exchange.
W. Headquarters and Supply Companies.
X. Shop.

they will be in some localities, they occupy a strip of ground about one-third of a mile wide and nearly 2½ miles long! Owing to the different topography of the various sites, the units will be arranged in different ways, varying from the straight-line plan and the U-shaped plan, as shown in the illustration, to the S-shaped and figure 8-shaped plans, it being essential that the principal street and parallel service street, on both of which the units are "threaded," have as easy a grade as possible. The sites for all have now been made public.

Messrs. George B. Ford, Charles Butler, J. Otis Post, Woodruff Leeming and other members of the American Institute of Architects acted as advisors in the planning of the cantonments and the individual buildings of which they are composed.

The Organization of the Architectural Profession

By SIDNEY WEBB, LL.B.
Professor of Public Administration in the University of London (School of Economics and Political Science)
(*Continued from the last issue*)

The Development of the Educational Problem

THE R.I.B.A. refused for many years to take the responsibility of awarding any diploma in architecture, with the question—which at that time seemed to many of the leaders of the profession an irresistible argument—how *could* there be an examination in architecture? In 1863, indeed, the Institute began to hold examinations in certain professional subjects, on the distinct understanding that to submit to them was to be and to remain an entirely voluntary work of supererogation on the part of the youthful aspirant, and that no diploma would ever be awarded. So discouraging were the conditions that no candidates presented themselves. Not for another quarter of a century, when a new generation of members had to deal with new conditions, did the official attitude change. Meanwhile the lectures and classes of the Architectural Association, long given gratuitously by zealous missionaries of architectural education, had gradually developed into systematically planned day and evening schools; and a certain amount of distinctly useful instruction for young architects was being provided, not only in the Royal Academy school but also by lectures at University and King's Colleges; by classes in building construction and various sciences in evening classes and technical institutes, and by several of the provincial universities. In 1877, after much pressure, the Council so far gave way to the desire for some distinct recognition of the need for professional training as to accept by-laws which provided that candidates for the Associateship might hereafter be subjected to the test of an examination. Not for five years were these by-laws acted upon and the necessary examinations held—not even then as a matter of course—whilst the Fellowship was still awarded freely without any such condition. In 1886, after renewed discussion and agitation, the Council referred to a Special Committee the consideration of the vexed question of whether or not the Institute should definitely place itself upon an examination basis and henceforth require the passing of prescribed tests as a condition of admission to the Fellowship as well as to the Associateship. That Special Committee found itself still faced with the poser, How *can* anyone examine in art? The modern tendency, and especially the influence in this direction of the allied societies in the provincial towns, was, however, by this time too strong to be resisted. After continued agitation a supplementary charter was obtained in 1887, expressly conferring the power to subject candidates to examination and to issue certificates or diplomas. A formal conference between the Institute and the allied provincial societies in May, 1887, resulted in resolutions emphatically calling upon the Institute to take into its hands the guidance and direction of architectural education, and to establish a complete series of examinations, qualifying for the stages of Probationers, Students and Associates respectively. It was provided by the new charter that, after five years from its date, it should be within the power of the Council to resolve that the Fellowship should be conferred only upon those who had already become Associates. It was the intention of a large part of the members that this power to restrict admissions to the Fellowship to the Associate class, and thus eventually to those who had passed the examination for the Associateship, should be really put in force. But the Council, representing, as it believed, the majority of the members, clung to the Institute's freedom to elect and admit to the Fellowship any practising architect, even if he had not passed through the grade of Associateship. This attitude of the Council led to some tension and to determined resistance by a minority, which was shown at different meetings in 1907 and 1908, by the failure of those candidates for the Fellowship who were not already Associates to secure the necessary three-fourths majority for election. The dis-

pute was settled by the supplementary charter of 1909, which definitely provided that the Fellows should normally be elected at a members' meeting from among the Associates, whilst allowing the Council, in exceptional cases, to elect and admit as a Fellow a practising architect of at least thirty years of age and over seven years' standing.* This systematic adoption of public examination for the Associateship, intended as the only future means of entry to the Institute, whilst it evoked some disapproval from those who clung to the conception of architecture as one of the "fine arts" for which examination tests seemed inappropriate, greatly stimulated the provision of professional instruction and incidentally proved most successful in attracting members to the Institute. Already in 1891 it could be reported that, since the examination was made compulsory for the Associateship, the average number of persons elected to that grade had more than doubled. During the past ten years the total membership of the Institute has again increased by fifty per cent. Even the objectors came gradually to recognize the utility of this systematic instruction. During the past decade the contending parties have, in fact, silently dropped the old controversy and applied themselves to developing the systematic professional instruction which should supplement the experience gained as pupil or assistant. The Institute now appoints a Board of Architectural Education, which includes advisory members representing the Architectural Association and the various universities of the British Empire having schools or professors of architecture. It distributes every year something like a thousand pounds worth of prizes and studentships. At great expense it maintains and opens freely to all comers the finest architectural library in the Kingdom. The Architectural Association, the universities and other teaching institutions throughout the country have become "recognized schools," working on a syllabus issued by the Board of Architectural Education and appointing External Examiners approved by the Board. Their examinations are thereupon accepted as alternatives to the R.I.B.A. Intermediate. The recognized schools also supervise the design work of students for the R.I.B.A. Final. Thus, the whole architectural education of the country has been coördinated and directed by the body representing the profession. The traveling scholarships awarded by the Institute, enabling several students annually to start on one or two years' study in other countries, may, it is hoped, be developed into a fully organized center of advanced architectural instruction, in London or elsewhere, in order to equip the most promising of the aspirants with the most comprehensive and the most advanced training.

*For the whole controversy, see the *Journal* of the R.I.B.A., and especially the volume entitled "Architecture a Profession or an Art," edited by Norman Shaw and T. G. Jackson (London, 1892, xxxv + 244 pp.), in which thirteen distinguished architects expound the artistic view. See a more balanced judgment in the article "Architects," by Alfred Waterhouse, in "Unwritten Laws and Ideals," edited by Miss E. H. Pitcairn (London, 1899).

Registration of Architects

The adoption of a system of public examinations as the portal to membership of the Institute has been throughout mixed up with the different question of the formation of a public register of the profession. The demand for some authoritative registration of persons qualified to be architects, with some protection for registered practitioners against the competition of the unqualified, is more than half a century old. Already in 1854, it is said, expression was given to the need of the qualified practitioner—especially in the provincial towns—for some such protection. Not only was (and is) every estate agent and every little builder free to put up whatever monstrosities in the way of colleges or villas that he chose, but any carpenter or contractor, even any auctioneer or house agent, was (and still is) free to style himself an architect, without knowledge or qualification of any kind, and to obtain commissions to put up buildings of all sorts from clients unaware of his professional incompetence, commissions which he may execute partly by making use of the published drawings and details and model forms of specification to be found in easily accessible technical works and partly by using the services as "ghost" of a youthful pupil or a salaried architectural assistant. There are cases in which the false pretenses of the self-styled architect amount actually to fraud on the public.

The Council of the Institute for a whole generation ignored the growing demand to which the profession was gradually becoming converted. Down to 1887, indeed, the subject

seems not to have cropped up in any official proceedings. "The leading lights of the Institute," it has been somewhat bitterly said of the men of these years, "comprising the greater number of the most eminent men in the profession, looked upon registration with disgust, as an attempt to trammel and hamper a calling the chief aim of which was not the exercise of professional or administrative functions but the expression of artistic ideals in brick and stone. Theoretically they were absolutely right, but they were the leaders of the profession in London, the largest practitioners, and some, be it noted, were remarkably good business men in the handling of their affairs. They never really felt the pinch of unqualified competition as did their humbler surburban and provincial brethren. Then was born the Society of Architects composed of men who felt the need for and demanded registration."* In fact, finding the R.I.B.A. refusing to move definitely for statutory registration, a number of architects, partly metropolitan, partly provincial, resolved to form a separate organization primarily devoted to these objects.

The Founding of the Society of Architects

Partly on the initiative of Mr. E. J. Kibblewhite, the Editor of the *Building News*, there was formed in 1884 the Society of Architects,† at first registered under the Literary and Philosophical Institutions Act, and subsequently (in 1893) incorporated under the Joint Stock Companies Act. For the first few years the new Society remained as small in membership as the Institute itself had been in its earliest decade. But the Society threw itself vigorously into the organization of an Architectural and Building Trades Exhibition, and by circularizing the very large number of practising architects all over the country, enrolled, from 1887 onward, a membership which grew into hundreds. In 1886 there had come together, independently of any society, out of a public conference of architects to discuss the position, an Architects Registration Committee, which the Society of Architects subsidized and supported. Inquiries made by post of 5,000 architects in practice in England and Wales produced over 1,300 favorable replies and only three objections. A Registration Bill was accordingly prepared and a public conference of architects urged upon the Institute the importance of giving some consideration to the subject. Thereupon Mr. Arthur Cates, F.R.I.B.A., expressed what was apparently the view of a majority of the members of the Institute when he urged that no further organization was required, and all would be well if architects who were really architects would, by the new examination, become Associates of the Institute, and thus mark themselves off from unqualified outsiders.* This satisfied neither the Architects Registration Committee, nor the Society of Architects. The Architects Registration Bill which had been drafted was accordingly introduced into Parliament in 1887 but failed to gain a day. A similar fate attended the Bill in 1888—when it was formally opposed by petition by the Institute and the allied societies—and in 1889, and again in 1891, 1893 and 1895, the Institute always formally petitioning against the measure, as its members, in effect, decided. A motion in favor of statutory registration was lost by three to one at a general meeting of the Institute in 1890, and this decision was confirmed on referendum by 520 to 164. In 1894 the Society of Architects laid it down that admission to its membership should thenceforth be normally only after examination, and—though leading to the resignation of some of the leading members—in 1898 a system of examinations was begun to which it was proposed that candidates below thirty-five years of age (subsequently altered to

**The Irish Builder and Engineer*, quoted in *Journal of the Society of Architects*, Feb. 7, 1914. It does not seem to be true, as alleged, that "the whole stir about registration began with a series of letters in a building paper about the lack of professional status which prevented architects from taking their proper position in society," on a level with lawyers, doctors and clergymen! ("Architecture a Profession or an Art," edited by R. Norman Shaw and T. G. Jackson, 1892, p. 219.)

†The Society of Architects now has commodious premises of its own at 28 Bedford Square, and a total enrollment of 1,185 (including 960 Members—including one lady now practising in Bombay, 31 Honorary Members, 18 Retired Members, 2 graduates and 174 students). It has a branch at Johannesburg in the Transvaal and scattered members all over the world. It was open at first to anyone who satisfied its Council of architectural competence and experience, and it includes therefore members, not only of the R.I.B.A. and its allied societies, but also of the Surveyors' Institution, the Sanitary Institute and the Institution of Civil Engineers. Admission to the membership is now restricted to practising architects of not less than thiry years of age, of seven years' standing as Principals, or of ten years' practice as Assistants and Principals, who pass the membership examination, or produce other sufficient evidence of training, ability and professional standing. Only a small proportion of the membership has, in fact, entered by examination. The annual subscription is two guineas. The Society publishes a monthly *Journal*. The Society has sought to establish a Professional Defence Fund, for assisting its members in legal proceedings, raising questions of principle affecting the profession, and has promoted a "Beaux Arts Committee" for the establishment of architectural ateliers after the model of those of Paris. But its main characteristic is its persistent agitation for statutory registration of the profession. See "Some Notes on the Work of the Society of Architects, 1884–1914," by C. McArthur Butler, in *Journal of the Society of Architects*, February, 1914.

*See article by Mr. Arthur Cates, F.R.I.B.A. in R.I.B.A. *Journal*, Nov. 10, 1887.

twenty-eight and then to thirty) should be subjected. Meanwhile the propaganda of the policy of statutory registration was maintained, and the Bill was introduced in the House of Commons again in 1900 but failed once more to secure a day. In 1903 the Architects Registration Committee merged itself in the Society of Architects, which thereupon carried through another elaborate plebiscite of the profession within the British Isles upon the issue of registration. Out of nearly 6,000 architects individually appealed to, two-thirds replied, and of these only 170 voted against registration. It is interesting to record that the Council of the Institute, which still looked upon the movement with scant favor, issued a counter-statement arguing against statutory registration, and appealed to their allied societies in the provinces to express their opinions on the subject. But a majority of the allied societies expressed themselves more or less forcibly in its favor. The election of the Council of the Institute in 1904, perhaps owing to superior organization of what was, in fact, only a minority of the membership, also went in favor of the candidates who supported the policy of registration, and the old attitude of absolute resistance may be said to have been then silently abandoned. On the one side, under the influence of the late John Belcher, who was president of the Institute in 1904–6, and was awarded its Royal Gold Medal in 1907, a considerable number of artistic and otherwise distinguished architects, who had hitherto held aloof from the Institute, were induced to throw in their lot with what had indubitably become the responsible professional organization for the whole Empire. On the other side, in the same year, the rival Society of Architects entered into friendly communications with the Institute with a view to arriving at a common policy. A Committee of the Institute, which had been appointed in 1904 to consider the whole subject, was emboldened to get drafted a new registration bill. Meanwhile, however, the situation was confused in May, 1905, by the rejection of the Institute's "Registrationist Council" and the election to the Council of members who stood on the old lines. The bill already drafted was published, but at the same time negotiations were set on foot with a view to uniting, not so much the divergent voices of the profession, as both sections of the Institute's members. This led to the submission to a general meeting, in April, 1906, of what was intended to be a compromise report. It was proposed that the Institute's Registration Bill should be dropped, and that the Institute should, for the present, "confine itself to attempting to obtain Parliamentary recognition for its membership." A supplementary charter was to be obtained, with new by-laws definitely restricting admission to the Fellowship to Associates, but widening the scope of the Institute by the admission of a new class of Licentiates, who might, under careful restrictions, for a limited period proceed to the Fellowship. These proposals secured the general approval of the members during 1906 and 1907, but the supplementary charter and new by-laws were not obtained until 1909 and 1910 respectively.

The Growing Support of the Registration Principle

Meanwhile the idea of an authoritative registration of the whole profession, protected by penalities on unqualified practitioners, obtained an ever-widening support. The Society of Architects again pressed forward its scheme, securing for its bill at the General Election of 1906 the support of many Parliamentary candidates. It was not without influence that the International Congress of Architects, held in London in 1906, had passed a resolution in favor of every country adopting a statutory qualification for architects. Another plebiscite of the profession in the British Isles, carried out by *The Builder* in the same year, showed a majority of eight to one in favor of registration. The tide was now too strong to be resisted. In 1911 the Institute appointed a Parliamentary Bill Committee to draft the limited measure contemplated in the "compromise" proposals of 1906. It became, however, apparent that the opposition of the Society of Architects, added to that of the unorganized practitioners, would be fatal to any Parliamentary proceedings. Negotiations were accordingly opened between the Institute and the Society, on the basis of the fusion of the two bodies, and the promotion of a bill for the registration of all actually practising architects, protected by penalties on unregistered practitioners. The basis of such

an amalgamation was agreed to by the two Councils, and even by meetings of the members of both societies, but at the last moment it was discovered that the charter of the Institute did not empower it to enter into a binding agreement on the subject. The completion of the fusion was thereupon adjourned until the Institute could obtain a supplementary charter. When, however, this supplementary charter was drafted and presented to the members of the Institute in 1912, it was referred back for further consideration of the whole subject.

The Establishment of the Licentiate Class in the R.I.B.A.

The somewhat bewildering uncertainty and vacillation of the Institute with regard to registration may be attributed partly to its own internal difficulties of constitution,—the method of election sometimes producing a Council out of sympathy with the majority of the members,—partly to an ever-shifting cleavage of opinion among the members themselves, not now so much about the desirability of some sort of registration as about the method and machinery to be adopted. In 1908–10, when the Institute could count in its membership probably fewer than a fifth of the architects of the British Isles, the Fellows and Associates agreed, as we have mentioned, to open its doors so far as to admit, at a subscription of a guinea a year, during a strictly limited period (March, 1910, to June, 1912), any reputable architect over thirty, not engaged in any other avocation than that of architect and surveyor, who had been either five years in practice as a principal, or ten years practising or studying architecture in any capacity, and who could get recommended by three Fellows or Associates for election by a two-thirds majority of the Council. He was not admitted as a Fellow, nor even as an Associate, but only to the new grade of Licentiate, and it was provided that Licentiates should have no right to vote and should not even become corporate members of the Institute. They were, however, given the privilege of proceeding by examination direct to the Fellowship, if otherwise eligible, up to the year 1920 only. No fewer than 2,221 Licentiates of the Institute were thus elected, and the number of architects within the range of its influence was thereby greatly increased. This great accession of numerical strength to the Institute encouraged those who, whilst convinced of the advantage of an authoritative registration of architects, doubted either the wisdom or the practicability of statutory registration, to which the Society of Architects pinned its faith, and who preferred to advocate registration by charter. Let the Institute, it was urged, obtain yet another supplementary charter, creating a new class of "chartered architects," analogous to the "chartered accountants," to whom official positions and public engagements could gradually be restricted. When, however, such a proposal came to be discussed it was found that many of the leading Fellows and Associates of the Institute were indisposed to admit to the privileged rank of chartered member either the members of the allied societies or the members of the Society of Architects, or even the Licentiates who had just been attracted to the Institute itself. These might, it was suggested, content themselves with the lower title of "registered architects." The Registration Committee, which had been appointed after the defeat of the fusion scheme in January, 1912, produced in 1913 a further scheme on these lines, leaving to the Council to decide whether to recommend a Bill on the lines of the "compromise" of 1906 or the policy of "registration by charter," without penal provisions against outside unregistered practitioners. The Council recommended the members to adopt the latter proposal—thus reverting substantially to the Institute's position of a quarter of a century before. Proposals for the necessary supplementary charter, carried by more than two to one at the biggest members' meeting ever held at the R.I.B.A., were still under consideration—the Society of Architects meanwhile once more getting its Bill introduced, this time in the House of Lords*—when the out-

*The Bill promoted by the Society of Architects in 1914 proposed the establishment of a Council of Architectural Education and Registration of the United Kingdom, constituted partly of nominees of the Crown and the various professional bodies, partly of representatives directly elected by the registered practitioners. The register is to consist, at the outset, of all members of all architectural societies, all persons actually practising in the United Kingdom, and all who have been for five years students or assistants. In future, admission is to be only on examination, after a prescribed period of training, either in an architect's office or at a school of architecture. The registered practitioners alone may use the term architect, and penalties are provided for any infringement. But the rights are safeguarded of members of the Institution of Civil Engineers, the Institution of Municipal and County Engineers, the Society of Engineers, the Institute of Civil Engineers of Ireland, the Surveyors' Institution, and the Quantity Surveyors' Association.

break of the war in 1914 threw the whole question into abeyance.

Some of the Prime Factors Involved in the Registration Controversy

Looking back on the whole controversy, it must be said in fairness to the early opponents of registration that, whilst the genuine advantages offered by the establishment of a register, notably in the way of securing thereby a higher standard of education throughout the profession, have gradually made themselves manifest, with the result of winning over to the idea the great majority of the profession, yet it has not always been for these public benefits that the registrationists have contended. Those who, in the earlier years of the controversy, took their stand against registration could not fail to be impressed by the fact that the movement drew much (though not all) of its strength from the desire of professional architects of no great competence or skill for protection against the competition of men who, often without regular professional qualifications, nevertheless succeeded in putting up buildings which were sometimes superior, rather than inferior, to those erected by their professionally qualified rivals. Not every Associate of the Institute, not even every Fellow, turns out better cottages and farm buildings than does the estate agent equipped with the best plans; streets of shops and dwelling houses less ugly and monotonous than does the speculative builder of practical experience; schools and municipal offices more adapted to their purpose and artistically less monstrous than does the borough engineer or surveyor. It was not until the case for registration was put on the broader and more tenable ground of its effect in improving the educational qualifications of the architects themselves—in the promotion of which those who talked most about registration have often taken least part—that it won its way, in so far as it could be shown to be practicable, to the hearts of the majority of the profession.

Moreover, many ardent registrationists who complain that so little has been done do not realize the obstacles with which those who have the actual carriage of the business find themselves faced. Great indeed are the difficulties in this country in the way of any authoritative registration which is to confer anything in the nature of monopoly privileges. The number of persons practising as architects in the United Kingdom, either as principals or as salaried assistants—to say nothing of the students in the schools and the pupils in the offices*—has been lately officially estimated at about 12,000, of whom perhaps 3,000 are in London, 8,000 in English provincial towns, 500 in Scotland, and as many more in Ireland and Wales together. Of these (allowing for members retired, or in other professions, or practising outside the British Isles) possible 750 are Fellows, and 1,400 are Associates of the R.I.B.A., being only one-fifth of the whole, and only a part of these have themselves been subjected to any examination test. About 1,750 are Licentiates, including some men of undoubted distinction (allowing for the same deduction), who have all come in without examination. The rival organization, the Society of Architects, has among its 1,000 members (allowing in the same way for members retired, or in other professions, or practising outside the British Isles, and deducting also those who are likewise Fellows, Associates, and Licentiates of the Institute), possibly 600 additional members, hardly any of whom have come in by examination, but whom the Institute was, in 1913, prepared to accept as Licentiates on the projected amalgamation of the two bodies. We have yet to add those members of the local societies allied to the Institute, who are, as principals or as assistants, actually in practice within the British Isles, but are not themselves Fellows, Associates, or Licentiates of the Institute or members of the Society of Architects. These may be estimated at about 700. There is also to be reckoned the Ulster Society, which is, since 1906, no longer connected with the Royal Institute of Architects in Ireland; there are three small societies of architects in England not allied to the Institute; and there is also in the same case the Bradford Society of Architects and Surveyors.† These together may contribute a few score. Thus, the number of Architects actually practising within the British Isles, either as prin-

*The R.I.B.A. has registered about 1,100 students who have passed its intermediate examination, and about 3,000 probationers who have passed its preliminary examination.

†The only societies of architects in the United Kindgom not at present in alliance with the Institute—apart from the Society of Architects—appear to be the Preston Society of Architects, the Gloucestershire Architectural Association, the Wolverhampton Society of Architects, and the Bradford Society of Architects and Surveyors, together with the Ulster Society of Architects.

cipals or as assistants, and members of one or other professional associations, may be put at between five and six thousand, or probably not quite one-half of the whole. How many of these are practising on their account as principals, how many are salaried heads of the architectural departments of public authorities,* and how many are merely architects' assistants cannot easily be ascertained. It is suggested by many that, if the Institute would but agree to admit to a common registered membership at the outset all the existing members of all the existing societies—or such among them as are actually practising within the British Isles—and if proper conditions for subsequent accessions to the register were agreed upon, voluntary registration, which might be ratified subsequently by an unopposed charter, ought not to be impracticable. The position is simplified by the term "in practice" being confined to those in general practice *as principals*, in accordance with the usage of the Institute of Chartered Accountants, and the task might be lightened if principals alone were made eligible for registration.

It is, however, objected that the establishment, by agreement among the societies, of a register of architects in practice—perhaps with four separate columns for principals carrying on general practice, the salaried heads of public architectural departments, salaried assistants actually engaged in architectural work, and duly enrolled students—whilst it would probably promote the amalgamation of the different societies and consolidate their influence upon the profession, would not achieve the object of preventing unregistered persons from posing as architects or from holding public appointments, or from obtaining architectural commissions from public authorities. To secure, whether by charter or by statute, any such monopoly privileges in this country will, it is said in reply, never be practicable. There are still not a few architects of acknowledged competence, and even high repute, outside the membership of any society—men who have passed no examination in architecture and are in possession of no paper qualification whatever. It would clearly be necessary to admit, at the outset, to any register conferring exclusive privileges, not only all the practising members of all the societies, but also all non-members actually practising the profession. Moreover what is an architect? This is a question which has led to much scornful controversy. "Perhaps no other profession in England comprehends within legitimate limits so great a diversity of recognized business." In law, as in common parlance, "every man is entitled to call himself an architect who undertakes the direction of building work."* Among the practising architects in the British Isles, some, it has been said, "are enthusiastic artists or exquisite draughtsmen while others make no such pretension. Some are careful scientific constructors and others nothing of the kind. Some are the most prosaic of building directors in the beaten track of commercial agency, and no more. Others are surveyors, valuers, negotiators, advocates, property agents, accountants, financiers, managers of estates, collectors of rents and what not, in the greatest variety."† The various societies of architects include, in fact, in their membership men who may or may not have some architectural competence, but who are actually practising mainly, or even exclusively, as surveyors, quantity surveyors, valuers, civil engineers, or sanitary engineers, if not also as estate agents, house-agents or auctioneers—in some cases even holding full-time salaried appointments unconnected with architecture. The Institute itself has dropped its express prohibition of its Fellows and Associates practising as quantity surveyors; and though the new class of Licentiates in 1910–12 were required to declare that they were engaged in "no other avocation," the combination of "architect and surveyor" was expressly permitted to them.‡ It is clear that

*It has been estimated that a couple of thousand architects are holding salaried appointments, otherwise than as assistants to architects in general practice—an estimate the accuracy of which is doubted by other authorities.

*"The Consulting Architect," by Robert Kerr, F.R.I.B.A., Professor of Architecture at Kings College, London, p. 170.

†*Ibid.*

‡"Out of about 1,100 persons in the London Directory under the heading "architects," of whom about 480 belong to the Institute, about 550 describe themselves as "surveyors," of whom about 230 are members of the Institute" ("Architecture a Profession or an Art," by R. Norman Shaw and T. G. Jackson, 1892, p. 91). It is interesting to give the corresponding figures twenty-three years later. Curiously enough, the total of architects and the number of these who are Fellows or Associates of the Institute is almost identically the same in 1915 as in 1892, viz., about 1,100 and 480 respectively, a very striking indication of the extent to which architectural business has been dispersed among the provincial towns or "localized." But only about 400 (as compared with 550) of these architects describe themselves also as surveyors, and of these only about 150 (as compared with 230) are Fellows or Associates of the Institute. It may be remarked that a surveyor is at least as difficult to define as an architect. "A surveyor," it has been said, "may be a land surveyor, a developer of building estates, an arbitrator or expert on matters of building law, or a quantity surveyor." (*Ibid*, p. 94.)

neither the Surveyors' Institution nor the Quantity Surveyors' Association would consent, any more than would the Institution of Civil Engineers, or the Institution of Municipal and County Engineers, to any enforcement of an exclusive right of architects to do work which is, in fact, now often performed by members of these societies.* It is said, in reply, that an Act of Parliament, or a Royal charter might at any rate confer the exclusive right to use the designation of architect, or registered architect, or chartered architect, with initials corresponding thereto; and that such laws are in force in many of the United States, in several provinces of the Dominion of Canada, in New Zealand, and in the province of the Transvaal. It is, however, a moot point whether any such new title, even with its corresponding initial letters, however legally protected, would be worth more in the eyes of the public than the old established F.R.I.B.A. and A.R.I.B.A. Nor is it clear that, even where statutory registration is in force, any great progress has been made, otherwise than on paper, in clearing away unqualified practitioners. Of the Transvaal registration, then over five years old, it was said in 1913 that, whilst, at some cost to the profession in fees, it had conferred a legal monopoly of the title of architect, this had been found to be nugatory. There was nothing to prevent all sorts of unregistered persons from doing what was essentially architects' work and pressing their services on the public. Advertisements appeared in the newspapers from estate agents and contractors, from civil engineers and land and building companies, even from persons calling themselves "structural experts," offering to supply plans and specifications and to put up every kind of building at fees having no relation to those customary in the profession.* On the other hand, it is frequently asked that it should be provided that no public authority or institution aided from public funds should entrust its architectural work to any but a registered architect†—a requirement which would be most strenuously opposed by the Municipal Corporations Association, the County Councils Association, and other representatives of local authorities, as well as by the various professional associations of engineers and surveyors, notably by the Association of County and Municipal Engineers. Finally, it must be said that, since the organized resistance made by the medical practitioners to the Government proposals under the National Insurance Act, the feeling of the House of Commons has become perceptibly more adverse toward professional organizations of any sort; and all expert Parliamentary advisers declare that the present House will not so much as look at proposals savoring of professional monopoly.

*Half a dozen architects—among them Fellows and Associates of the R.I.B.A.—describe themselves in the London Directory for 1915 as being also civil engineers. A small number of Fellows and Associates of the R.I.B.A. are also associates or members of the Institution of Civil Engineers or the Institution of Mechanical Engineers, and more of them are Fellows of the Surveyors' Institution.

It is to be noted, too, that joint stock companies, such as the gigantic London "stores," are now practising as architects to no small extent, as well as carrying on the businesses of house agency, valuing, surveying, and building—all in conjunction with each other!

*Letter from a Transvaal architect, in *Journal of the Society of Architects*, January, 1914.

†At the instance of Mr. (now Viscount) Bryce, a provision was inserted in the Laborers' Cottages Act for Ireland that any person whom the local authority wished to employ as architect should satisfy the Local Government Board of his competence.

(*To be continued*)

Important Court Decision on the Districting Law of New York City

A court decision having an important bearing on the districting law adopted by New York City in 1916 was recently rendered by the Appellate Division of the Supreme Court of New York City. The case involved the validity of a contract for the purchase of property lying within a residential district, as determined by the districting plan. Prior to the enactment of the law, a manufacturing firm contracted to purchase the property in question with the intention of using the same for industrial purposes. The passage of the law restricted this property to residential purposes only. The original owner of the property sued the manufacturing concern to force them to carry out their contract, but the Appellate Division of the Supreme Court held that the restriction imposed on the property by the districting plan was an incumbrance on the property and therefore invalidated the original contract in which no reference was made to such incumbrance.

Part of the opinion relieving the defendants of the contract reads:

"There can be on doubt that such a restriction (the zone resolution) upon the uses to which the property may be put would, if imposed by a covenant found in the chain of title and running with the land, constitute an incumbrance and absolve defendant fron his contract to purchase it. This is conceded by the plaintiff-respondent. But it is said that such a restriction upon the use to which the property may be put, if imposed by legislative or municipal authority, while it may operate as an incum-

IMPORTANT COURT DECISION

brance on the property and affect its marketability, is not such an incumbrance as may be availed of by a vendee to avoid his agreement to purchase it.

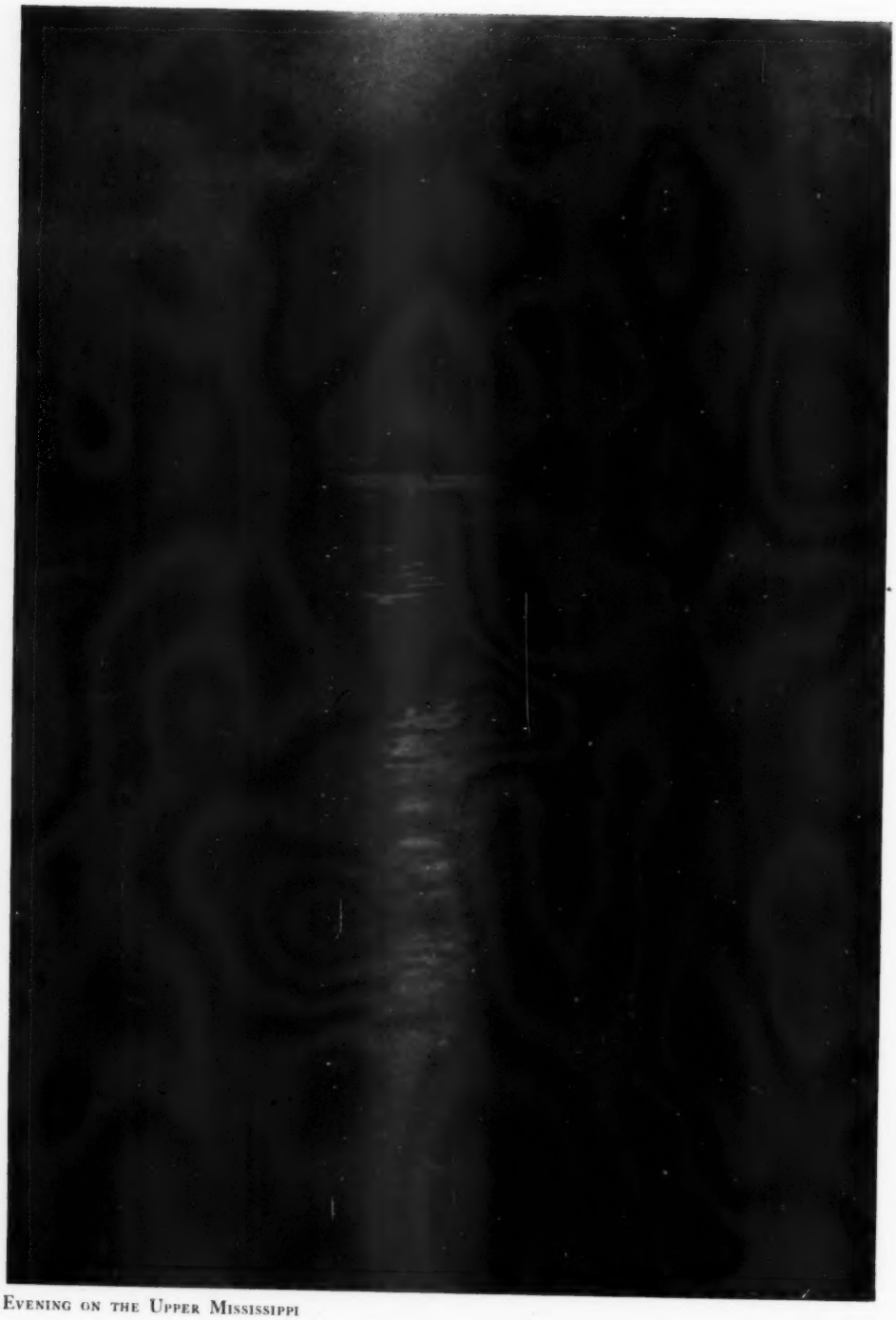
"Undoubtedly, if a person contracts to purchase a building, such as a tenement house or a factory, which is restricted as to the manner of its use by laws and ordinances existing when the contract is made, he will be chargeable with a knowledge of these restrictions and will be deemed to have contracted to purchase the property subject to them."

The final report of the Commission on Building Districts and Restrictions of New York City has now been made public. It will be found invaluable to students of zoning, districting and city planning generally, and may be had for $1 from the Committee on City Plan, Board of Estimate and Apportionment, New York City.

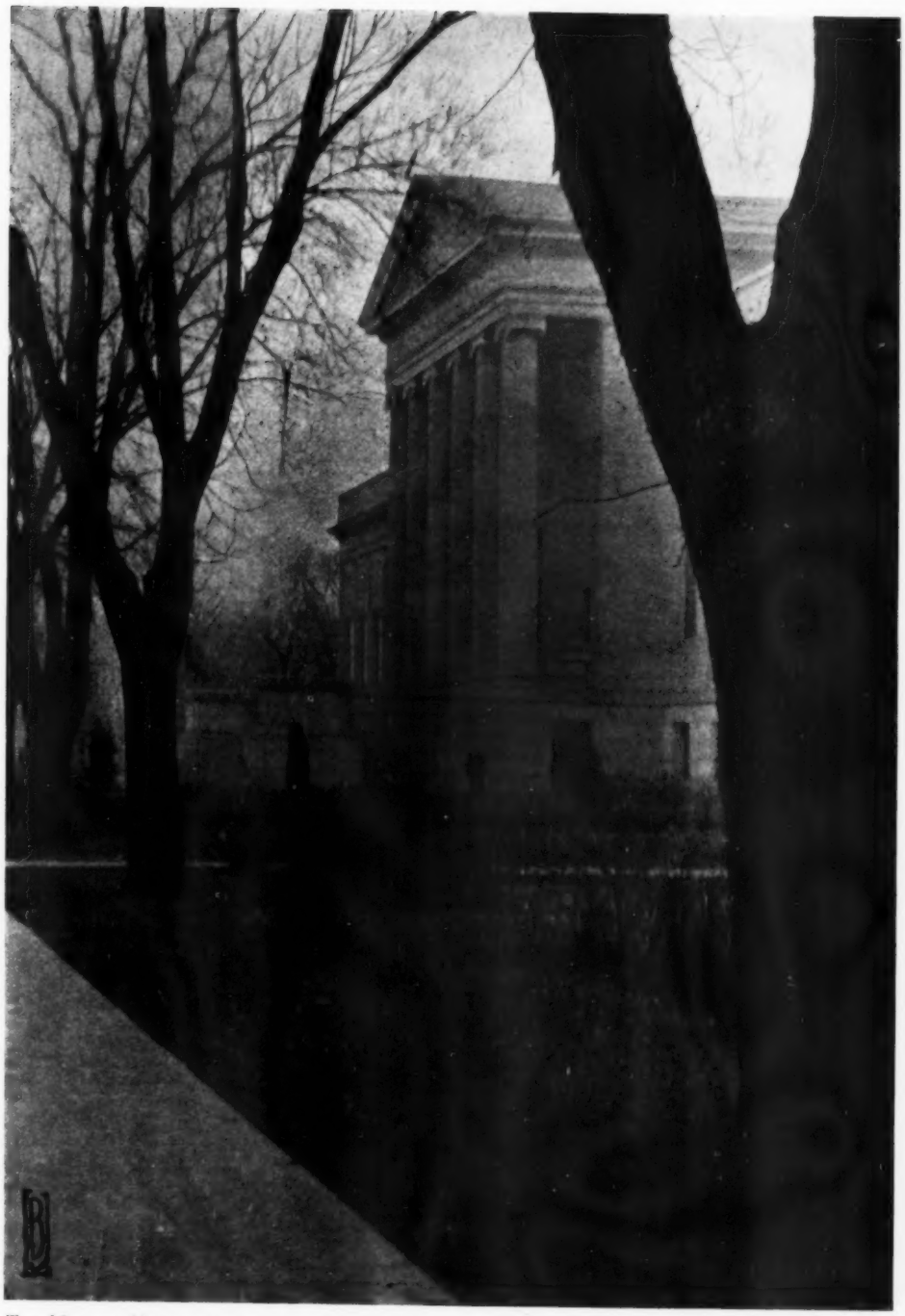
Charles Butler, Architect

Military Unit Hospital Built by The Rockefeller Institute for Medical Research, in New York City

On June 1 last there was begun by the Rockefeller Institute of Medical Research, on its grounds at 66th Street and Avenue A, New York City, a military unit hospital. The object of this enterprise is to make available to patients an improved method of treatment; to demonstrate and teach to American surgeons who may be enrolled for military service measures for the treatment of infected wounds, especially by the Carrel-Dakin method; and to test the feasibility of a unit portable military hospital designed by Mr. Charles Butler, of New York City, who worked under the French War Department in making a thorough study of the military hospital units which have been developed for use in France and England. The hospital has now been completed, and while its erection was at least expedited by the war, it is expected that it will be of great benefit in the treatment of industrial accidents of all kinds where infected wounds are of frequent occurrence. Successive groups of surgeons will be assigned to the hospital as a means of familiarizing the Army Medical Department with the treatment invented by Drs. Carrel and Dakin. The results, both from the medical and from the hospital points of view, will be watched with keen interest by all who are interested in seeing the war hospitals of the United States brought to the highest standard through the utilization of the knowledge and experience which has been so dearly bought by our allies. The buildings in the above unit have double walls, roofs and floors, since the experience in France has proven that single walls, roofs and floors are not suitable to extremes of heat or cold. It is reported that men have been frozen to death in hospital buildings of the single-wall type.



Evening on the Upper Mississippi



THE MUSEUM, MINNEAPOLIS

Cathedral Heights
New York City

Beaux-Arts Institute of Design

Official Notification of Awards—Judgments of May 22, and June 5, 1917

Class "B," Fifth Analytique

Jury of Award.—F. H. Haskell, C. L. Lawrance, A. L. Noel, A. Ware, J. H. Adams, H. P. Pennington, F. B. Chapman, J. F. Harbeson.

Program.—A Niche. *Drawings submitted, 77.*

Awards.—First Mention Placed, R. A. Fischer, Carnegie Institute of Technology; S. Meyer, Columbia University; L. Konvalinka, Atelier Hirons, New York City; F. Monhof, Los Angeles Architectural Club; W. J. Rankin and B. Laub, T-Square Club, Philadelphia; W. P. Moyle, Atelier Wynkoop, New York City.

First Mention, R. DeGhetto, Boston Architectural Club; P. Binger, Jr., and R. H. Bickel, Columbia University; H. R. Leicht and M. Capobianco, T-Square Club, Philadelphia; N. O'Toole, University of Louisville; R. S. McCauley, Atelier Wynkoop, New York City.

Class "B," Fifth Projet

Jury of Award.—F. A. Godley, L. Warren, F. H. Bosworth, Jr., F. C. Hirons, W. L. Bottomley, H. McGoodwin, H. W. Corbett, Prof. Burnham, B. Hoyt, A. Crisp, H. R. Sedgwick, L. F. Peck, H. M. Woolsey.

Program.—A County Courthouse. *Drawings submitted, 77.*

Awards.—First Mention Placed, A. E. Middlehurst, Cornell University; O. Blomstergren, P. A. Tischler and H. G. Marceau, Columbia University.

First Mention, W. K. Norton and E. J. Truthan, Cornell University; A. B. Lincoln, Atelier Hirons, New York City; J. Regan and R. F. McClelland, Atelier Wynkoop, New York City.

Special Prize Competition

Class "A," Sixth Projet

Jury of Award.—F. A. Godley, W. Emerson, W. L. Bottomley, L. Ayers, R. H. Dana, Jr., C. H. Aldrich, H. W. Corbett, W. Lamb, J. Wynkoop, G. A. Licht, D. D. Ellington.

Jury of Award for awarding of prizes.—F. A. Godley, W. Emerson, W. L. Bottomley, L. Ayers, R. H. Dana, Jr., C. H. Aldrich, W. Lamb, L. Warren, H. R. Sedgwick, J. H. Freedlander, F. H. Bosworth, Jr., R. Bolles.

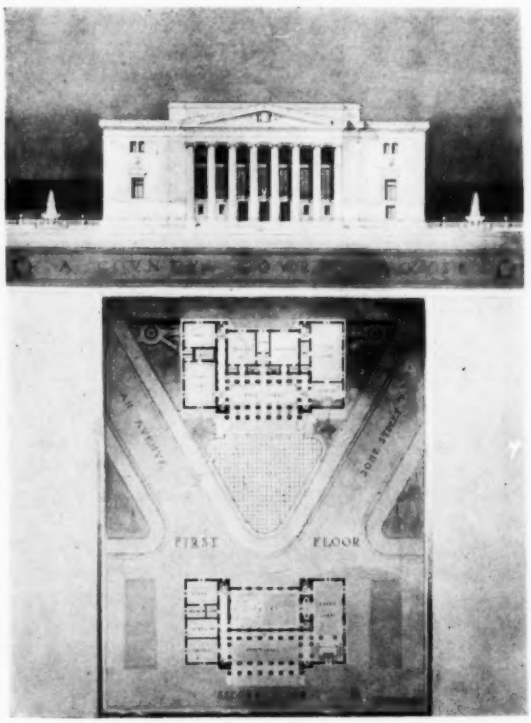
Program.—A Courtroom for the United States Supreme Court. *Drawings submitted, 31.*

Awards.—First Prize, Architectural Books to the value of $200 and First Medal, L. C. Licht, University of Pennsylvania.

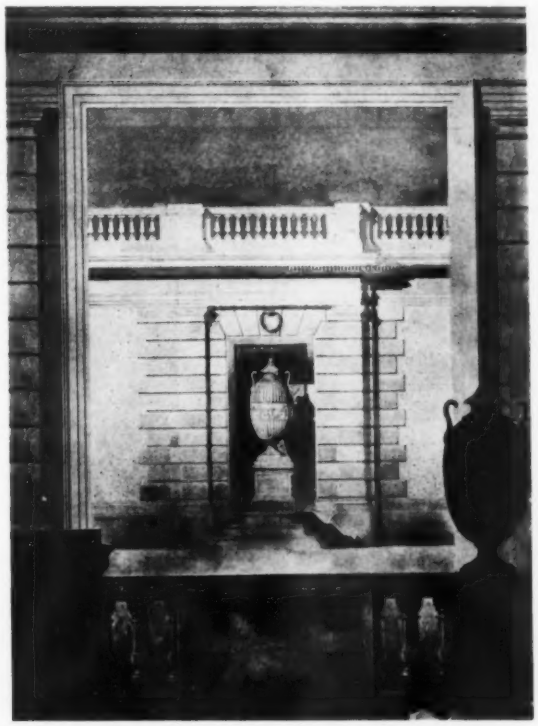
Third Prize, Architectural Books to the value of $50 and First Medal, A. F. Skogse, Atelier Hirons, New York City.

The Second Prize was not awarded.

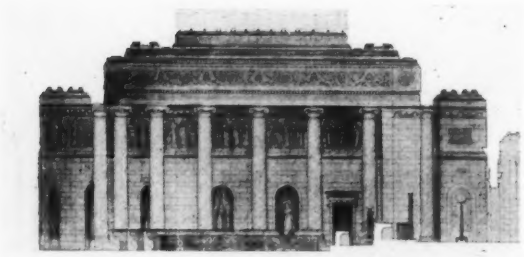
Second Medal, L. V. Lacy, Cornell University; M. C. Beebe, Atelier Hirons, New York City.

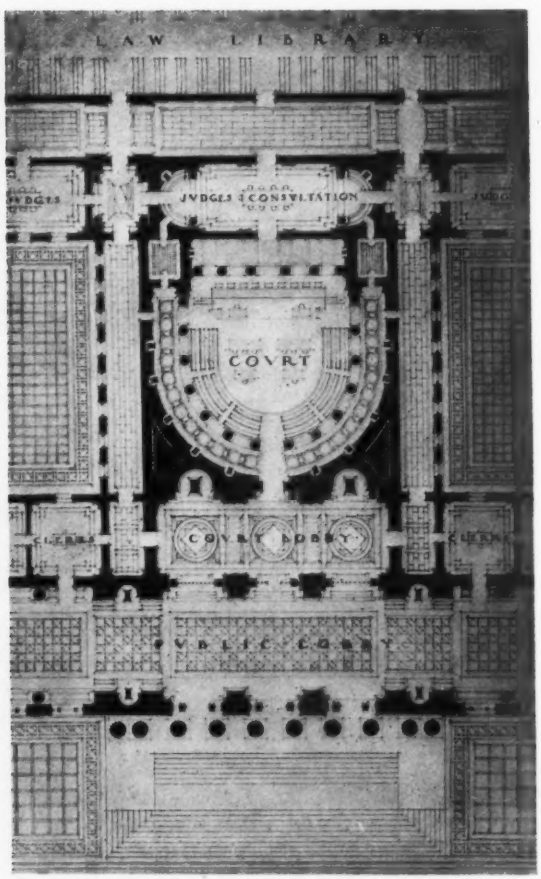


CLASS B.—V PROJECT.—A COUNTY COURT HOUSE
First Mention Placed, A. E. Middlehurst

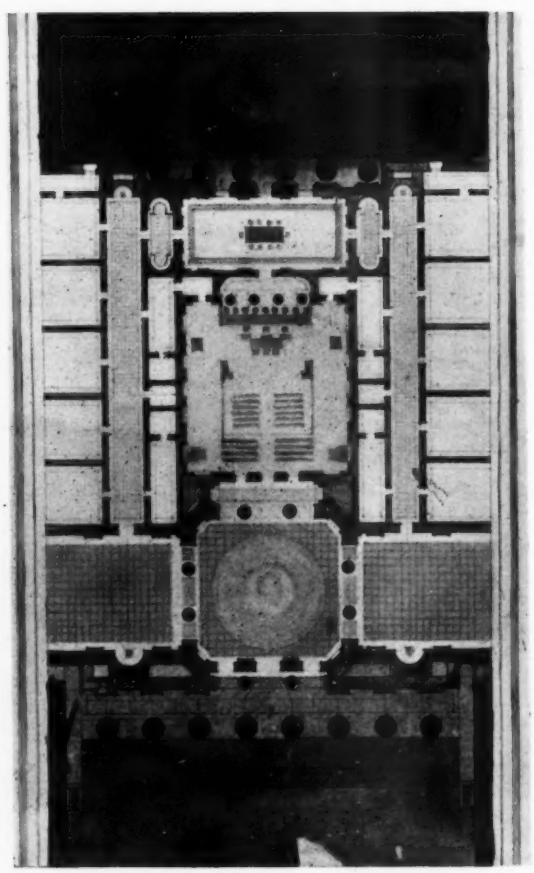


CLASS B.—V ANALYTIQUE.—A NICHE
First Mention Placed, W. J. Rankin





First Prize and First Medal, L. C. Licht



Third Prize and First Medal, A. F. Skogse

SPECIAL CLASS COMPETITION AND CLASS A.—VI PROJET.—A COURT ROOM FOR THE UNITED STATES SUPREME COURT

WASHINGTON, D. C., SOUTH SIDE OF DUPONT CIRCLE. Mounting Height of Lights, 12 Feet

Street Lighting in the National Capital

By WALTER C. ALLEN
Electrical Engineer for the District of Columbia

ABOUT eight years ago, the importance of adopting a comprehensive plan for lighting the streets of Washington was recognized, and to that end an extensive series of tests was conducted to ascertain the possibilities of the various forms of lighting and their adaptability to the several classes of streets. These tests (Trans. Ill. Eng. Soc., Vol. 4, No. 3, March, 1909) were followed by trial installations on the street of lamps of various sizes, spacings, and mounting heights, and from the data obtained the present plan of lighting was adopted.

For the residential boulevards, avenues, and streets having (generally) a roadway width of 50 feet, the posts are arranged on the "staggered" plan with a spacing of 60 feet measured along the axis of the street (see Figure 1). Gas-filled incandescent lamps of 100 candlepower are used, mounted 10 feet 3 inches above the pavement in opalescent globes 14 inches in diameter (see Figure 2). The present rates for these is $23 per lamp per annum, which gives a cost of approximately 39 cents per foot of street per annum. For other residential streets where the roadway width averages 35 feet, a spacing of from 75 to 80 feet is employed, with the "staggered" arrangement, and with the same size and kind of lamp. Illustrated descriptions of this form of lighting appeared in the "Illuminating Engineer" for October, 1910 and January, 1912. Several typical views are given here (Figures 3 to 13), showing how admirably the posts harmonize with the surrounding improvements.

For the important streets outside of the congested business area, where traffic considerations require a higher intensity of illumination and where the roadway widths vary from 70 to 85 feet, 100-candlepower lamps are placed on the parallel arrangement (that is, opposite each other), with an average spacing of from 75 to 80 feet (see Figure 14). In this instance the posts are twelve feet in height to the center of a 16-inch opalescent globe. The annual cost per foot of street in these cases varies from 57 to 62 cents.

For the streets in the congested business area an ornamental arc lighting system has been adopted, using the 6.6-ampere luminous lamp giving approximately 1,500 candlepower at an angle of 15 degrees below the horizontal. These lamps are set on the top of the posts, inside especially designed spherical ribbed globes, having twelve panels of cased opal glass (see Figures 15 and 16). The light source is placed 15 feet above the pavement, and the glare from it is entirely eliminated by the perfect diffusion obtained through this cased glass, with an absorption of about 30 per cent of the light. The posts are "staggered" at an average spacing of 100 feet, measured along the axis of the street. The rate per lamp per annum is $97.50, which gives an average maintenance cost of 97½ cents per foot of street.

That portion of Pennsylvania Avenue from the Capitol to the Treasury Building, famous as the scene of the quadrennial inaugural processions, has been especially treated. The same type of post and arc lamp is used as in the congested area; the spacing, however, averages 50 feet along the axis of the street, which is 109 feet wide between curbs (see Figure 17). In this particular instance, 123 lamps are used along 6,356 feet of street, giving an annual cost of $1.886 per foot. These posts are so designed as to be readily adapted to the use of high-candlepower gas-filled incandescent lamps, should the substitution of such lamps for the present arc lamps be desirable. The results of a series of tests made by the Bureau of Standards to

FIGURE 6. EAST CAPITOL STREET. LAMPS STAGGERED: 50 FOOT ROADWAY. Mounting Height of Lights, 10′ 3″

FIG. 7. MASSACHUSETTS AVENUE, ORNAMENTAL INCANDESCENT LIGHTING. 50-foot Roadway

determine the illumination on the surface of the roadway are shown in Figure 18. The decimal figures adjacent to each test station represent the average foot candles obtained by two different observers using separate photometers. A well-illustrated description of this installation will be found in the *General Electric Review* for March, 1914.

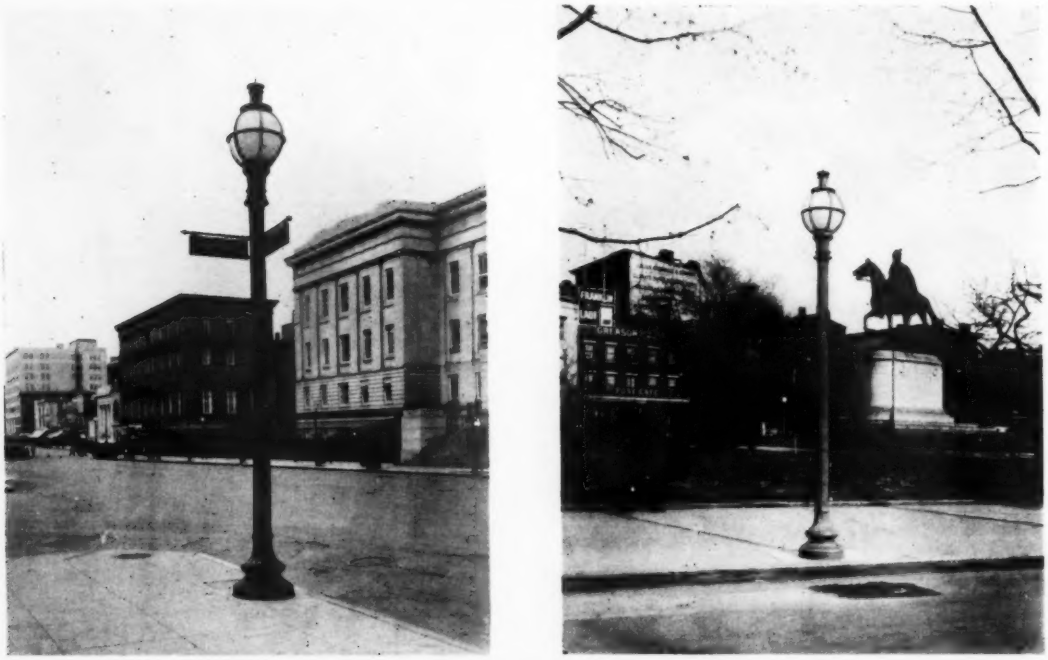
Architects will be interested in the opinions of the Federal Commission of Fine Arts on a plan suggested by the writer (see Report of Commissioners of the District of Columbia, 1909, Vol. I, p. 159, and *Illuminating Engineer*, January, 1909, to light this avenue from centrally located posts.

"Members of the Commission are personally familiar with a large number of the instances, both abroad and in this country, illustrated in the paper accompanying the report on the plan, and each of the members has independently reached the opinion that in every case of long, straight avenues the appearance of the streets has suffered materially from the presence of the posts in the midst of the street. Therefore, in spite of the fact that such a method of lighting has been tried in many important thoroughfares, it is believed that lamps on tall posts, with isles of safety in connection, near the middle of the roadway, would confuse and seriously injure the appearance

FIGURES 3-4. WASHINGTON, D. C. ORNAMENTAL INCANDESCENT ELECTRIC LIGHT POSTS

FIGURE 13. SOUTH SIDE OF WASHINGTON PUBLIC LIBRARY. Mounting Height of Lights, 12 Feet

FIGURES 8-9. PENNSYLVANIA AVENUE AT THE WHITE HOUSE. LAMPS IN PAIRS (PARALLEL ARRANGEMENT). Mounting Height of Lights, 12 Feet, Roadway 80 Feet



WASHINGTON, D. C. ORNAMENTAL ARC LIGHTING. FIGURES 15-16

of Pennsylvania Avenue, the most important vista in the Capital. Another consideration, which is both practical and esthetic, is that the presence of these posts and islands in the roadway would interfere with the best handling of parades."—See Report of Commission of Fine Arts for 1912, Senate Document 960, 62nd Congress, 3rd Session.

So-called "White Way" effects have not been sought in any of the plans for the illumination of the streets of the National Capital. With the possible exception of the Pennsylvania Avenue installation, the illumination is of a low intensity compared with that in vogue in many of the large cities of this country.

FIGURE 12. SEVENTEENTH STREET. MEMORIAL HALL OF THE DAUGHTERS OF THE AMERICAN REVOLUTION IN FOREGROUND. Lamps Staggered, 60 Feet Spacing, Mounting Height 12 Feet, Roadway 50 Feet

Town-Planning and Housing

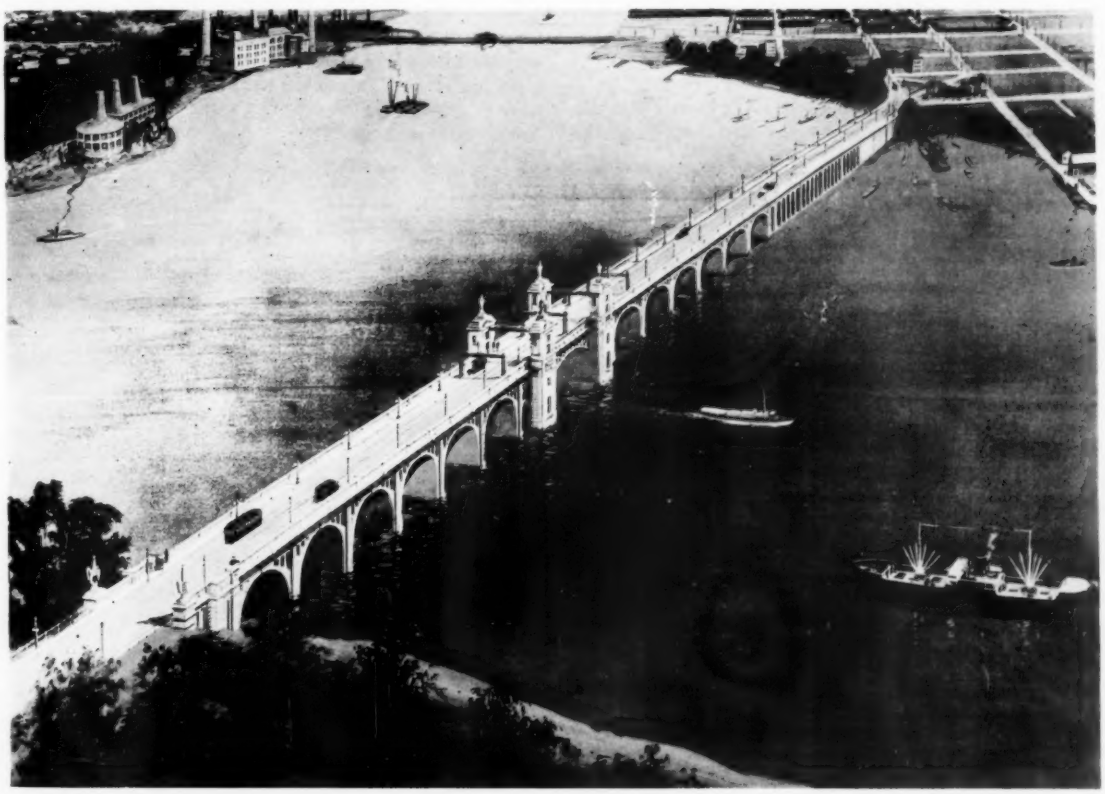
GEORGE B. FORD, Associate Editor

Progress in the Development of Baltimore's Civic Center

The civic-center plan for Baltimore prepared for the Municipal Art Society in 1910 by John M. Carrere, Arnold W. Brunner, and Frederick Law Olmsted, was given a new lease of life recently when the Mayor proposed a vote by the people of a $3,000,000 bond issue for carrying out the project. This bond issue was authorized by the Legislature in 1908 but was never submitted to the voters for ratification. Since the Mayor's suggestion was made public, the City Planning Commission, the Park Board, the Municipal Art Society, and the Committee on Housing have devised a plan to facilitate the financial accomplishment of the plan.

The scheme involved the immediate acquisition of three city blocks lying between the City Hall and Fallsway, the latter a recently completed highway constructed above what was formerly an open creek called Jones Falls. The Courthouse, Post-Office and City Hall form the nucleus of the civic center.

The plan proposed and the method of financing it has met with general approval, but the whole scheme has been set back temporarily by a court action recently instituted by owners of the property to be taken. An existing ordinance under which it is proposed to condemn this land was deemed insufficient to enable the city to take title. When legal difficulties are removed, it is proposed that the civic-center scheme should proceed as originally planned.



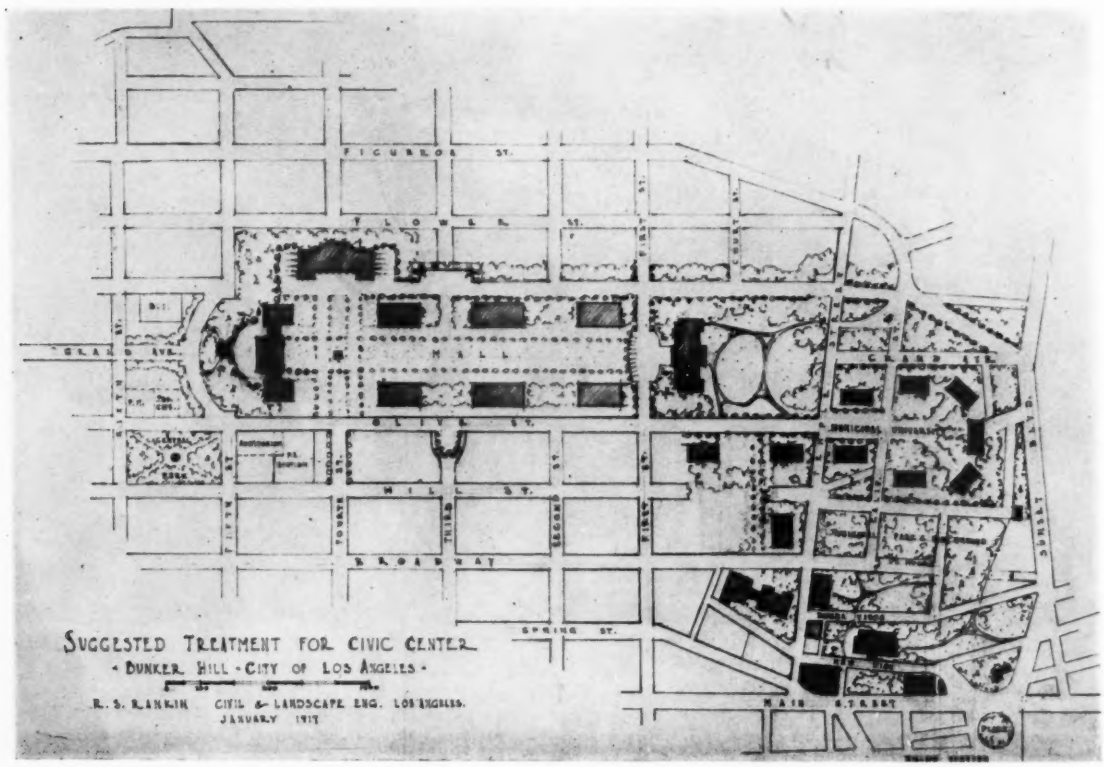
New Baltimore Harbor Bridge

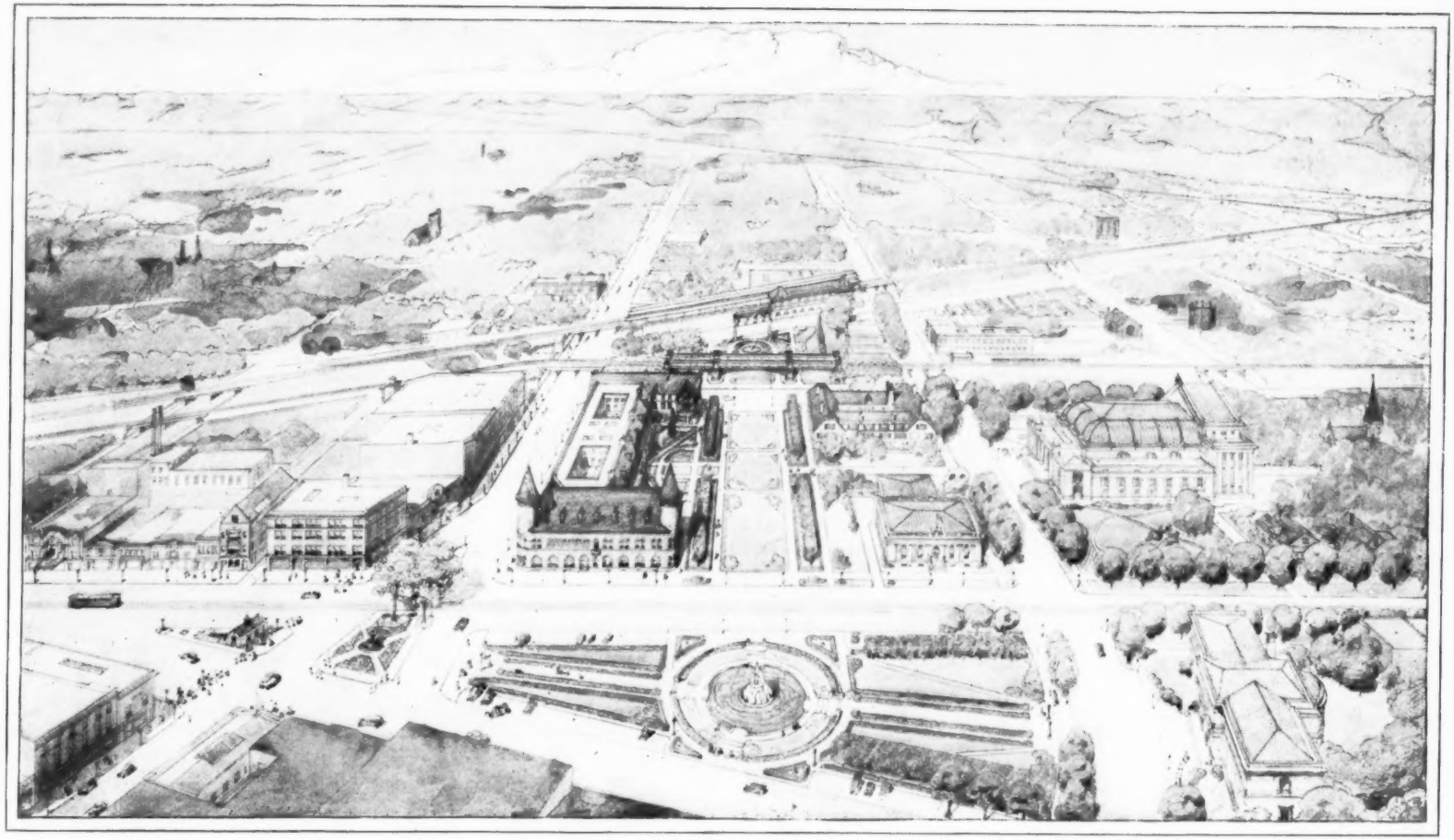
Among the extensive plans for the development of the harbor and contiguous industrial districts in southern Baltimore, one of the most important projects is the Hanover Street bridge across the Patapsco River at Light Street. It is of concrete construction and interesting architecturally. The bridge was erected from designs by J. F. Greiner, consulting engineer, with W. W. Emmart, of Elicott and Emmart, as consultant on architectural details.

Proposed Civic Center Scheme for Los Angeles

A civic-center scheme for Los Angeles has been proposed by R. S. Rankin, landscape architect, and a member of the City Plan Association of that city. The plan involves the acquisition by the city of what is termed Bunker Hill, and provides for the erection of several municipal buildings. It is believed that the site proposed presents an opportunity for the construction of a centrally located monumental group surpassing any other similar development in the country. In addition, the cost of the land is surprisingly low, location and size considered.

The civic center for Los Angeles has been under discussion for a number of years. A plan for a central development of this sort was proposed by Charles Mulford Robinson in his report to the Municipal Art Commission in 1907. This plan, however, was invalidated by the erection of a county building on a portion of the site without relation to the general scheme as proposed. Mr. Rankin's plan provides for a new city hall, one of the immediate needs of the city, and allots sites for a state building, a music hall, a museum of fine arts, a municipal theatre, post-office, courthouse, and hall of records. It also includes a related educational group or municipal university. The chief feature of the scheme is a formal quadrangle about which the buildings will be grouped.





THE PROPOSED CIVIC CENTER FOR EVANSTON, ILLINOIS

As shown by the plan reproduced above, the civic center scheme consists of three major areas: Commercial Park; the central square with public mall (on which the existing city hall and post office are located); and an area known as Railroad Park, lying between the Chicago and Northwestern depot and the elevated railway. The plan involves the removal of business buildings now located on a portion of Commercial Park, the clearance of the areas (shown in green) on the central square, the removal of the embankment below the elevated railway tracks in Railroad Park, and the development of the latter area on formal lines, with a dignified bridge of three spans to carry the elevated railway tracks. The whole scheme gives a fine vista from Commercial Park along the public mall to the railway entrance to the city.

Plan of Evanston

The city of Evanston, Ill., has recently been presented with a valuable city-planning report by the City Plan Committee of the Small Parks and Playgrounds Association, an unofficial organization formed in 1909. The Plan Committee was appointed in 1916. Its members are Daniel H. Burnham, II, chairman, Dwight H. Perkins, Thomas E. Tallmadge and Hubert Burnham, all members of the Institute. The "Plan of Evanston" is the result of nearly a year's study by the Committee, with the coöperation of public-spirited citizens who contributed funds for the drafting and printing of the report, which is a real addition to the literature of city planning, both in respect to its form and makeup, and particularly with respect to the appeal which it is certain to make to the people of Evanston. It illustrates a happy combination of graphic material supported by sound facts presented in simple and attractive form.

The Committee has based its recommendations on knowledge gained from daily acquaintance with the city and its life and has been unusually successful in proposing changes and improvements in the plan that are manifestly reasonable and comparatively inexpensive.

For fully over half a century Evanston had the reputation of being a place distinct in some ways from the other suburbs of Chicago; a place where many advantages were to be enjoyed. Yet there are unmistakable evidences today of a growth which menaces the permanence of the original advantages of the town, and which the Plan Committee seeks to remedy by wise provision for future planning work.

The major portion of the "Plan of Evanston" is given over to the typical problems of a residential city, namely, pleasure drives and traffic ways, the civic and educational center, and the recreational system. The first group of problems, relating to commercial and pleasure traffic, is treated in three sections. The Committee lays special emphasis on that phase of city planning which is steadily increasing in importance, and which is of peculiar significance to Evanston, namely, the separation of commercial traffic from pleasure vehicles by the provision of traffic ways peculiarly adapted, by reason of their grade, alignment, and direction, to the needs of local business. Closely related to this problem is that treating of the diversion of commercial traffic not originating in or destined for Evanston, to by-pass roads and county thoroughfares radiating from Chicago to the north and northwest. This and the other problem dealing with traffic of various kinds are treated in accordance with the best modern practice and are so reasonable and practical as to commend them to the city authorities.

The second group of problems hinges about the improvement of the city center. Today, a visitor entering Evanston at either of the Davis Street stations would find little promise of what the city holds in store for him. The city gate and city center are inadequate and utterly unworthy. The Plan Committee's recommendations which are illustrated in the perspective view reproduced herewith, have the merit of being inexpensive, favorable to traffic movement, architecturally pleasing and sufficiently restrained to make possible their gradual realization. The scheme will benefit business in the city center, increase taxable values, and stimulate civic pride. The cost of the property required for the city center would not exceed $120,000, including land to be purchased and buildings to be removed.

The third important group of problems is the extension of the park system and the provision of adequate recreational facilities, with a proposed island in the lake, parallel to and about 600 feet from the shore-line. The greatest physical asset of Evanston is its lake frontage, and the plan proposes to develop this to the fullest possible extent for park and recreation purposes. This is the most important and expensive project recommended by the Committee. The cost of construction for the island park would be slightly over a million and a half dollars. Evanston's present park assets, amounting to one acre for each one thousand of population, fall far short of the standards set by other progressive American cities. The Committee proposes an extension and improvement of parks and playgrounds that will provide comprehensively for all classes and ages of the population. Briefly, the Committee recommends the provision of playgrounds under private initiative in the center of blocks; the acquisition by the city of large and well-designed play-spaces about school buildings and of athletic fields for games and sports, and a municipal golf-course.

The importance of districting or zoning is emphasized and strong recommendations are made for early action by the city in this direction. The well-deserved distinction of Evanston as a city of trees is discussed and measures proposed for scientific planting and culture. The Committee very wisely includes a chapter on steps for realizing the improvements proposed, and, as a necessary incident to the financing of a large part of their program, strongly urges the creation of a park district for the whole of Evanston, as affording much more ample powers and opportunities to realize some of the proposed improvements at an early date.

News Notes

Perhaps the architects of Pennsylvania did not realize why their proposed registration bill died a natural death. The following letter from Mr. Albert Kelsey, the President of the Pennsylvania State Association of the American Institute of Architects, may shed some light on the subject:

July 13, 1917.

C. Emlen Urban,
President of the Southern Pennsylvania Chapter, A.I.A.,
Lancaster, Pa.

Dear Sir: I have just learned from State Senator Jenkins, a member of the Judiciary General Committee, why our bill to license architects was never reported out of Committee. He naively told me that it was thought to be a hindrance in the way of poor boys, adding apologetically, that the music teachers and barbers of Pennsylvania had each advanced similar bills, and further that the music teachers' bill was never reported out of Committee any more than ours, but that the barbers' was, only to be voted down by the House.

Very truly yours,
(Signed) Albert Kelsey, *President.*

The Architect's Service*

By A. F. WICKES

The purpose of this meeting of the Indiana Society of Architects and those architects of the state who are not members, is to have an afternoon of study. We are not here to discuss prices; we are not here to discuss the recompense that we are to get from the public; we are here to discuss our service to the public. We want to study our personal efficiency, our office efficiency, and our business efficiency toward our clients.

Sometimes we decry the fact that we are not appreciated. I wonder how much you and I appreciate other professions. Perhaps we are part of the common public when it comes to appreciation of the law or appreciation of medicine. Now, do we expect the lawyer or physician to exert an unusual appreciation of what our work is when that is the case? And isn't that about the public's attitude?

I think we have seen this from the small point of the telescope. I think we should begin to appreciate the public before we can ask the public to appreciate us in our work. Let us appreciate what the needs of the public are; let us participate in public work; let us be the thinkers of our community; then we shall be deserving of appreciation from the public.

We have asked for recognition at the hands of the public a great many times. I think all art has asked for recognition at the hands of the public, to be disappointed for centuries, in many cases. We have been disappointed for four years in the endeavor to get a license law passed.

But this meeting is not to discuss fees nor rewards, it is to discuss our relationship with and what we may give to the public at large, serving as professional men. Discussion of fees is the very least important thing of our whole problem.

If we stop to ask whether we are appreciated or not, why, we are lost. The man who stops to admire his own work is lost. The man who does not keep going on, stepping upward and higher and better and improving and changing his ways is lost; he is standing still. I don't know of any great physician who stands and asks the public if he is appreciated. I don't know of any really great artist who stands and hangs around the institute doors and asks if he is appreciated by the public. That's none of his business: it's a small concern of his. It is his duty to go on and do the best he can.

If we have chosen a life's work which entails a service to the public, then we are on a par with the soldier who enlists and surrenders his life to his country. It is no further will of his what shall be done with it. And if we go into our service to the public in the beginning looking only for compensation we are looking at the wrong end.

There is no reason why if a man makes good plans and good specifications—and it goes without saying that the architect should perform that kind of service—that the public should not be called upon to check him up. And to say that this man is a good architect and that man is a poor architect should not be necessary.

The public is interested in service, and if we had rendered the right kind of service there would never be any question as to whether the architect is holding his place as he should.

A great many times I believe it would be a pretty good thing to have an exhibition of what an architect's service to a community is constituted. We all of us think we make good drawings. Some of us do: I venture to say some of us don't.

I think I know what I ought to give for service. I give all I can. I don't think there is any stopping.

Another thing that endears us, I think, to our clients is that we may make an inquiry at least once or twice a year about a building we erected. Let's retain a little interest in that building. Let's let the client know that we are interested in the service that we rendered him some time ago.

We can make ourselves indispensable to the community in which we live if we will go at it in the right way and if you can make the client believe, the public believe, that the architect is indispensable to all building operations you may be certain that he is going to use you, because you have convinced him of the fact that he needs you.

*Extracts from an address at a meeting of the Indiana Society of Architects, Indianapolis, June 23, 1917.

At the meeting where the above quoted address was delivered, the discussion showed some diversity of opinion. We quote from Mr. Snader's remarks:

"I hardly agree with the idea that has been put forth (Mr. Wickes' address). I think that the idea is very desirable but it seems to me there is another side from which to look at the thing. It seems to me we are not appreciated on the part of the public because they do not know, because they lack something in their education, and it seems to me that in some way a campaign of education might be carried out."

Yes, as Mr. Snader suggests, the public should be educated, but we must not forget that the people will learn to expect good service and good architecture if it is given them regularly, will learn it just as easily as they have learned to expect gratuitous service and questionable practice among architects in those localities where such practices have been rather common. Most people can appreciate good service when it is given whether they know one architectural style from another or not. The client's respect gained by such service opens the way for his architect to influence him in the matter of good taste and good architecture. So after all the thing reverts to service and higher standards of architectural practice.

Architectural Education in England

THE THIRD ANNUAL CONFERENCE OF THE R.I.B.A.

AT A TIME when we are bending our energies toward the moblization of all of our resources for the prosecution of the war, when we are considering what contribution each of us can make and while we are thinking of how the life of England and the nations of the continent is directed alone toward the accomplishment of a single purpose, it is interesting and most significant to read two such closely related articles as "The Organization of the Architectural Profession" (in the British Empire), by Sidney Webb, L.L.B. and a copy of the *Journal of the Royal Institute of British Architects* for May, 1917, containing "The Education of the Architect" (a discussion at the Third Annual Conference in February, 1917).

These articles are not only interesting because of the pertinent material which they contain, but they are even more interesting as showing that it is quite possible during such a time of stress to consider seriously the state of things as they exist and also at the same time to formulate a constructive program for future action.

Mr. Webb's article began in the Journal of June, and I will refrain from comment. Certain ideas expressed at the Conference, however, are well worth noting. In opening the Conference, Mr. H. B. Lanchester stated the educational problem very clearly. In part he said:

"In one sense the education of the architect cannot begin too early. It has been claimed that the faculty of observation essential in every branch of art must be encouraged as soon as it appears. It frequently is, only to be smothered by ill-devised educational methods at a later stage. The appreciation and comprehension of the facts by which we are surrounded, and their relationship measured in time and space, is the true object of education, and the observation necessary to acquire this should be in play throughout. Book studies are only useful in so far as they facilitate and quicken this. The substitution of book studies for the actual factors of life is disastrous to mental development, but this is too often the effect of the conventional type of education. Of course, specialised training may come comparatively late, but if the previous instruction has been on sound lines not only will the special studies be more easily assimilated but the bent of mind will be much more obvious when it comes to the choice of an occupation. Apart from the cases when a youth is for extraneous reasons drawn into a profession for which he is unsuited there are far too many in which this occurs through lack of the means of knowing what his natural qualifications are, these having been obscured by a false system of education.

"Educationalists have begun to realise the deficiencies of the methods still too general and to grasp the fact that where learning is a drudgery the method of imparting it is to blame. Real education, adapted to the age of the pupil, is always interesting to him, and as he advances he is most anxious to arrive at the point at which he is taking part in useful work. This point need not be postponed until the definite adoption of a life occupation. The advocates of Regional Survey have shown that many useful things can be done in school, while the Boy Scout movement owes its growth to a popular rendering of the same ideal. Such a programme introduces contacts with life and work which are of the greatest value in developing initiative and in encouraging a point of view, so that the young no longer feel their future careers to be things remote and apart from the educational stage of life. They know more of the world at large and are better prepared to assist in the choice of their future work."

Particularly significant and rational is the thought suggested in these paragraphs:

"I am indebted to Professor Fleure for the suggestion that there should be a period of State service according to capacity, on no account necessarily military, in order that the functions of citizenship, in its broadest sense, should be appreciated. Whether this be practicable or not, in some way or other the sense of communal life as qualifying individual aggrandisement should be acquired. In regard to this, the altruistic aspect, one must not be thought to undervalue the teachings of religion when one affirms that they have not, as a rule, been able to dominate social relationships.

"To pass from the general to the particular—namely, the consideration of our profession and its educational needs—much as one would like to assume as a basis the type of preparatory education previously hinted at, this is at the present moment so rare that such an assumption will detract from the utility of our proposals. It is only practicable to start from the existing average, noting by the way the broader variations in antecedent training. Now this antecedent training usually falls short in affording no real knowledge of life and its realities, both material and social, so that professional education must endeavour to supply these deficiencies.

"Knowledge of actual and material conditions, as the simpler of these two aspects, comes earliest, and some of our technical schools deal fairly comprehensively with this, though there are still many districts where such preliminary training is inadequately provided for; while our examinations are deplorably defective as tests of this kind of knowledge. I am not exaggerating when I say that it might be possible to pass the Institute Examinations without being able to distinguish between a lump of lime and a piece of plaster, or a malleable casting and a wrought scroll.

"When we come to the question of design as an aspect of social economy the business becomes more difficult. The factors that influence the standard of beauty, a complex of traditional method and logical expression, are not easily balanced, and even our leading schools of thought are not altogether at one. Then again, even among the best archi-

tects but a few are capable of imparting the skill they possess in a comprehensible way, and it follows, therefore, that the ultimate point at which knowledge can be imparted will be reached by only a proportion of those who have qualified to join the ranks of the profession. Briefly, out of the many legitimately engaged in architectural work, the architects will always be few.

"Thus we see the necessity for a grading of the schools where studies leading up to architectural practice are dealt with. The principle of classification in schools is generally recognised, but the duty is imposed on us of examining the credentials of all schools where architecture is taught and of deciding to what stage they are competent to bring their pupils. If necessary we could advise such schools as to how they may best raise their standard of qualification. At the same time it is also incumbent on us to study our own examination with a view to bringing it into accord with the general principles we lay down, bearing in mind that there are aspects with which the ordinary forms of examination cannot adequately deal."

Mr. A. E. Richardson's paper was devoted primarily to a consideration of "concept" in building, and while suggestive, it fails, it seems to me, to convince. One may grant the truth of his statement as regards what has actually occurred in America, but it is quite another thing to accept his conclusion, particularly if considered as the basis for an educational program in America.

"If it is true that education on the mechanic side needs careful revision and adjustment, it is more than urgent that the higher branches of training—namely, investigation of history bearing on design, and the sphere of design proper—should receive increased attention, for English architects have a reputation in the one branch and not in the other.

"We have at this juncture unique opportunities of studying the latest modern expression in building in France and America. What do we find?—a new system of building arising out of new methods of construction? No! Contrary to expectation, we find the reverse to be the case. The trained and scholarly builders of both countries have realised that construction is subordinate to conception, and are content, in all humility, to compete with the masterpieces of tradition, and to fashion the bodies of their buildings according to the taste and judgment of centuries, while employing recent discoveries in materials and science to the making of the skeleton. Does this not clearly show that a new system of architectural expression is beyond the scope of the individual, and that the underlying laws of architectural composition, call it the scientific ordering of parts if you like, are immutable?"

To say that what we have accomplished here in America proves that the laws of architectural composition are immutable, makes one doubt those laws. There is, however, definition and constructive suggestion in the statement:

"Concept and power to reason, together with the logical apportioning of the factors determined by diverse problems, is the basis of building. Here it is that the trained and specialised mind comes into action. Of what value are the bricks, stones, iron beams and concrete rafts to the man who remains inarticulate, and incapable of creating?

"In the encouragement of architectural training it is essential that renewed attention should be given to the appreciation of the conditions of modern life. Following the custom of the French, students should be taken by their professors to great modern buildings, there to observe the mysteries and working in being. They should examine a railway station, note the crowds to be accommodated, the volume of traffic and goods arriving by rail, the offices and business arrangements, the conveniences, the roads for vehicular traffic ancillary to the railway tracks, the thousand-and-one details. They should inspect the Parliament Houses, the cathedrals, the public offices and Government departments, the clubs, the staging of an opera as well as the design of the auditorium, the shopping centers, life in hotels, flats, and private houses. What does a measured drawing teach other than the scenic arrangement of doors and windows, with perhaps the application of column or pilaster? What can be gained by laboriously measuring the bay of a cathedral if the ulterior purpose of the building is ignored?"

One would like to see the following paragraph turned into a definite educational program:

"Construction in these days is really simpler than it was in the past. We can dare more, build lighter, span greater openings and perform divers tricks of conjuring; but such performances do not prepare the way for our reception in good society. Neither will our audience applaud such actions if these antics are not part of a pithy plot. The Romans were the great constructors of the antique world, but their buildings in conception are unique, and they took care to present them decently. The skeleton of the human frame is not a beautiful thing, but the vigorous body in full development is, and Mother Nature wisely guards against incongruities by providing cartilage for ornament. The simpler the construction the greater the realisation of the idea; and whereas construction is variable, concept is always constant."

From the standpoint of education, one is jolted by this last statement. Does this suggest the proper basis for our teaching?

"In conclusion, gentlemen, perhaps it will not be inopportune for you to glance at the monograph of the New Pennsylvania Railway Station, which is familar, but which illustrates my points more effectively than lengthy arguments. Here will be seen that combination of science and art in which the engineer humbly performs his part and interprets the Piranesian rhetoric of the chief builder.'

Mr. Beresford Pite, who spoke after Mr. Richardson, stated frankly that he could not "derive very much from the Chairman's address or Mr. Richardson's" (which proves that it was a real educational conference). He deals with a fundamental when he says:

"At the present moment architectural education is run with a constructive side and with an artistic side. This is mainly through the syllabus of the Board of Education and the educational scheme of the R. I. B. A. It is easy to rave at it, for it is hopelessly bad in theory. The construction and the art of the subject ought never to be separated. But, as a matter of fact, I think I am right in saying that there are no books that deal with these

subjects as a unity. There is an abundance of books which deal with construction and which make the learning of construction simple, from the earliest to the advanced stage, and which follow the art of the builder and the art of the engineer progressively. There are a number of books also which deal with the external aspects of buildings, ancient and modern, which are themselves interesting and important. And it is with these two sources of supply that the teacher has to work. These books provide the text-books for the elementary and technical classes, they provide the text-books for the elementary art classes, and for the architect's office book-case. It is with the material of these works that the work of education is done."

Prof. F. M. Simpson discussed the possibilities of applying a system modeled upon lines parallel with the Beaux Arts Society in America and discussed its application to conditions surrounding the present English system of training.

Mr. Robert W. S. Wier read a paper, much of which was related to the subject of examinations and the registration of architects. It may be of interest to quote at length from his paper, since the subject of registration is now interesting many Chapters of the Institute.

"What I am principally concerned with is the fact that, in spite of all that has happened, in spite of the influx of the large body of protestants, examination appears to be more firmly established than ever. Blomfield has been your President, Newton is now, Lethaby is an active member, but what impression have they made on this question. Are they now agreed that it is the best way, perhaps to them the only way; if not, why did they not strenuously set out to alter the system radically?

"The other day I asked a friend, who is one of the examiners, and who himself passed in by examination about the time of the great controversy, whether the examinations went on much on the old lines. Yes, he replied, but they are much stiffer.

"These essays of twenty-five years ago argued against the *principle* of examination. The following are a few quotations from various essays in the book by different authors, now all members of the Institute:—

Blomfield:

(1) "'The Institute examination as a means for the advancement of architecture is a farce and a sham.'

(2) *Again:* "'I have heard architects, whose experience entitles them to speak, say distinctly that this examination does not qualify young men to be competent assistants, much less competent architects.'

Lethaby:

(3) "'The so-called training of architects at the present time consists not in being taught their art but in learning more or less by rote out of books some facts about it *when their art was an art.*'

(4) *Again:* "'When the arts of building are all of them killed out finally, and the memory of their doing dead, who shall build them up again? Will being examined in architectural history, practising a mechanical system of drawing and acquiring the completest equipment of all the routine of the profession give back to us the skill and delight of the craftsmen?'

"I could quote many others did time permit.

"And now we come to the point that I have been endeavouring to lead up to.

"To my mind practically the whole of the architectural training in this country is affected by the act that these qualifying examinations exist and that most of the young students are working with the avowed intention of trying to pass them.

"This is one of the greatest faults in the present system, and until it is remedied—and it can be remedied— there seems little chance of real progress.

"Sir Thomas Jackson has never wavered from the principles he laid down twenty-five years ago. The following views he expressed then are, as far as I know, still his to-day. He and Mr. Basil Champneys are, I believe, the only living representatives of that memorable company that signed the protest who are outside the Institute still.

"He says (p. xxiv.):

"'It is difficult to overrate the mischief that is done to the architectural student by misleading him in his studies and making the passing of examinations his aim, instead of the acquisition of a sound knowledge of his craft. He studies not to know, but to pass; he thinks he can learn from books and drawings of things what he can learn only from things themselves; he mistakes archeology for art, and imitation for design: he is forced to push aside things he really cares for because they may not pay with the examiners, and to leave half-mastered subjects that interest him because it is time to cram up something else that is sure to be asked. These evil influences affect the teacher as well as the student. 'The highest kind of teaching,' says one great authority on education, 'which aims at formation of mind, cannot find free play for itself under a system which subordinates the teacher to the examiner. Such a system has a perpetual tendency to give a mechanical character both to the teaching and its results. Originality and freshness in the teaching is killed by the perpetual necessity of paying regard not to the subject that is to be taught, but to the examination that has to be passed.'

"It is quite possible, however, that so long as architecture maintains its present position *as a profession*, so long will examination in some shape or form continue to exist, and more so if registration becomes a *fait accompli*, which Heaven forbid!

"Further, the regulation and control of such examinations are likely to remain in the keeping of this Institute, acting in collaboration with other kindred bodies, but so long will the real and efficient training of young architects be cramped and ineffective.

"But there are other forces rising up, backed by a public opinion slowly but surely being enlightened on essentials.

"In various large provincial cities we now find flourishing municipal schools of art and craft in which the teaching of architecture takes an honourable place in association with the crafts.

"The London County Council are giving serious consideration to the question of training in architecture in association with the crafts of building. A fully equipped and wonderfully efficient school of building has been in existence for some time in South London, of which Mr. H. W. Richards is Principal and Professor Beresford Pite is Director of Architecture. A course of higher training might follow on either in connection with the universities

or otherwise, and young architects passing through these schools would have the opportunity of working for a definite aim which will be attained through the merit of their work, and not by artificially set examination papers.

"Already the London County Council awards its Scholarships not on the results of examination papers, but on a careful consideration of the quality of the work of the term. It was my privilege a year and a half ago to act as an adviser and report on the work of candidates for L. C. C. Art Scholarships in this connection, and I was much impressed with the simplicity and efficiency of the system through which awards were given.

"Further, school work must go on in conjunction with practical training; by this I mean training in actual contact with real work, training under a competent practising architect, who will be required to allow time off in working hours for the student to attend classes and lectures, or engage in craftwork of one form or another.

"To again quote Sir Thomas Jackson (p. xxviii.):—

"'Our proper field is not confined to the office; we are, or should be, still more at home in the workshop or the building sheds; our brethren are not the lawyer and the doctor, but the craftsman and the artisan; and if the architect should choose to be his own builder or craftsman, and carry out personally the works he designed, he would but be doing what was done by his predecessors, whose handiwork we now take for our model. If architecture is ever to live again amongst us the professional idea must disappear.'

"When I was very young and at the start of my training, I had to go at 8 o'clock to the old Drawing School at Edinburgh and do an hour's work before proceeding to the office. In Scottish universities the lectures begin at 8 a.m. summer and winter, and students of Law, for instance, go to lectures before office hours much as we used to do. I fancy a similar system pertains in France. Why should it not be possible here? We shall have to lead a more strenuous life, work harder and start earlier, after the war.

"But what will happen to this Institute under such new external conditions. It may have to revert to its old pre-examination times position, referred to by Mr. Reginald Blomfield in one of the essays. He says:—

"'The old position of the Institute was safer. It had its fine library, its Royal Charter, its considerable financial resources. It had all that was necessary to make it a center of scholarly discussion and research on questions of architecture, and an official headquarters of reference on points of professional procedure. . . . But it has stepped outside this useful and honourable position: in its solicitude for architects, it has aimed a dangerous and insidious blow at architecture itself.'

"In conclusion, I should just like to read you a further quotation from Sir Thomas Jackson (pp. 230–232) on the possibilities of the future. Some of you may perhaps call the idea verging on the Utopian; for my own part I believe in its thorough practicability and efficiency.

"'Imagine, for instance, some National School of Architecture, to which anyone connected with building could have access, whether he intended to be an architect, or a builder, or a craftsman in one of the arts connected with building. Let there be no conventional distinction of profession, no barriers of etiquette to divide the students. Furnish the school with competent teachers and appliances for study in every branch of the art. Let it be possible to learn all the mystery of good construction, but let construction never be taught except in connection with design, nor design except in connection with the proper and natural use of material. Let the school be regularly visited by those who are recognised as masters of the art, to whom the paid teachers should be subordinated, and to whom the students could look for direction, advice, and correction of their taste. Let the students have every opportunity given them of seeing work actually done, and of themselves putting their hand to it. For those who have no workshops at home, which the young builders would naturally have, let there be attached to the school, workshops where the process of every handicraft could be demonstrated, where masonry, carpentry, joinery could be practically taught, and a forge where iron could be wrought. Drawing of a practical kind should, of course, be taught, so that every student might be able to set out and explain his ideas to the workmen or himself. Here those who mean to be ordinary builders might, if they please, stop. The school would, of course, be graduated, and it would not be necessary or desirable that everyone should go through the whole course of artistic training. We do not want our finer tools to do our rougher work, and we do not employ our most accomplished artists on ordinary occasions. The great thing would be that up to this point all should have been trained alike without distinction, and that the builders should have associated with those who aimed at higher flights, and should have shared in the same training under the best masters of the art. In this way we might hope to introduce into the building craft good taste, knowledge of design, restraint, and appreciation of simplicity; and with these qualifications, which would in time become traditional, we might hope for better things in the ordinary class of buildings for which no great architectural effort is needed. We might, in fact, hope to raise our ordinary street architecture to the level of that of the last century, when, without any affectation of architectural effect, the sober brickwork and graceful joinery, full of pleasant fancy and quiet imaginings, combined to make some of the most lovable homes in England. Above all, let there be no folly of certificating or labelling the student as proficient at any period of his career. Let him remain a humble learner all his life; and let the school be open to him at any future part of his history whenever he wants instruction or advice, or desires to freshen his interest by contact with younger aspirants.'"

The last speaker, Mr. H. DeCollerville, touched upon a phase of the subject which is particularly pertinent here in America; in part he said:

"Might I suggest that before settling on any definite scheme of education it is important that the duties to be undertaken or accepted by the profession as its legitimate share of service to the community should be defined. From my own point of view I should like to see taken up as part of our profession all professional subjects both of art and science as usually applied to controlling the builder.

"We should strive to show the public that the architectural profession is capable of exercising all the professional functions connected with building operations with-

out recourse to outside professions and gain their respect and confidence by that method.

"Collaboration among various architects, all experts in various branches of an intricate profession, would be in accordance with modern requirements and need not necessitate that those connected with the scientific side of the subject should be termed 'engineers.' We lose confidence in ourselves by the adoption of this term, while by allowing the educational side of such subjects as reinforced concrete to pass into other hands, we invite encroachment on our legitimate province of work. We have seen in connection with the present crisis that the Government have been inclined to discount the services of architects, and it is a regrettable thing that at the present moment, when so much building work is required for Government purposes, the Professional Employment Committee should have to find relief work for apparently unwanted architects, by placing them in temporary positions in other callings. If the Institute could be induced to interest itself in all the problems connected with building, including the engineering sciences which are developing on all sides, the educational bodies would be bound to reflect the views of the main body on this matter, and considerable scope could eventually be offered to young architects whose inclinations invite them to specialise in such subjects as reinforced concrete; and this would relieve congestion and thereby better the lot of those who are more gifted for planning and design, while at the same time it would shut out competition from commerical firms encroaching on professional work."

What Messrs. Blomfield, Lethaby, and Jackson have said regarding the incompleteness or inconclusiveness of examinations may be perfectly true in general—we may admit that a set system of examinations tends directly towards developing a superficial sort of preparation—yet it does not necessarily follow that a system of examinations which follows a system of prepartion is doomed to complete failure. We should not confuse this question by the introduction of a false assumption. All depends upon the nature of the preparation and the nature of the test. Both may be narrow, cramped and academic, or both may be broad, liberal and humanizing. Just now tests and examinations are looked upon by many with a certain degree of disfavor. I am not inclined, however, to condemn the test utterly. I merely condemn the relative value which has been assigned to it. When a subject has been made sufficiently vivid and interesting, when it has become a matter of personal interest with the student, it matters little whether or not a test follows such preparation. In the final analysis all depends upon the scope and the content of the courses and not upon the test itself.

The test in itself may provide but meager evidence of a man's ability; surely it will neither by itself develop architects or an architecture; but it may be argued with reason that a well-organized examination may play an important part in the development of education.

The test of education is found in experience, and therefore if we approximate in our preparation and in our tests the conditions of experience in which a worthy ideal is made vivid as a goal of endeavor, we shall provide for the student the conditions for his certain advancement.

The practical value of registration lies not so much in the usual conception of its value (the granting of a license) as it does in the condition that by such an act we focus the attention of all those who intend to practise upon the entire range or scope of the interests which lie within the architect's field of work.

A very large proportion of those who are practising as architects today, and in a way are preforming the functions of the profession, possess but a comparatively limited knowledge. Some are versed in matters relating to "design," others in "construction," others in subjects of a technical or mechanical nature; but there are comparatively few who could stand a test in the entire field of the architect's activities.

Now the reason for this is that education in architecture has been limited in its scope and certain phases have been omitted, while others have been overemphasized. If a set of examinations can be developed which will approximate conditions of practice, it will have the value of indicating to the student more accurately than do our present methods of education precisely what is the nature of his chosen calling.

To look upon technical education or upon registration as the sole means whereby through the architect an adequate architectural expression may be achieved, is to greatly overemphasize these factors. Registration, with its accompanying preparation and its test of ability, is I repeat, but a method of indicating more clearly to those who intend to practise architecture that they must be prepared to cope with certain conditions which obtain in the modern practice of their profession. In the same way it is a formal method of saying to the public that a working knowledge of a certain definite kind is deemed by the profession itself to be essential in the practice of architecture.

Our methods of technical education in architecture are comparatively new: surely it is an experiment and it is conceivably all wrong. Our tests and our methods of examination and registration may be crude and faulty, and they may fail utterly to define the nature of the architect's work, yet there is a saving clause: In this age of specialization any attempt, however crude, which looks toward the development of knowledge in a broader field of related interests, which tends to widen the student's horizon, which brings him into closer contact with experience may be the means of bringing about that integration of expression which is essential to indigenous art.

F. L. Ackerman.

Obituary

Henry Vaughan

Fellow of the Institute, 1891
Died June 30, 1917

Further notice later

Emmanuel Louis Masqueray

Elected to the Institute, 1906.

Mr. Masqueray was born in Dieppe, France, in the year 1861. He was a pupil of Laisne and Ginain, and entered the Beaux-Arts School in 1879. In the year 1880 he was awarded the Deschaumes prize, and again in the following year the Chausedaigues prize, and to him we owe one of the first Beaux-Arts ateliers in New York City, which he founded in 1893.

It was at the suggestion of Mr. Carrére, who remembered him as a fellow student at the Beaux-Arts, that he came to this country. He was in our office from 1890 to 1892, so that my personal recollection of him goes back to the days when we were both young men, a quarter of a century ago.

As a young man he was ambitious and full of enthusiasm, and this youthful enthusiasm never left him in his later days. From our office he went to Richard M. Hunt, where he was held in the highest esteem. He was also in association with D. Everett Waid. He became prominent in connection with the Exposition of St. Louis in 1904, where he executed most of the garden and landscape work, cascades, decorative bridges, etc., also the Horticultural Building.

It was at this World's Fair that he was discovered by Archbishop Ireland, through whose influence he settled in St. Paul. While in St. Paul he designed their Cathedral, also the Pro-Cathedral of Minneapolis, the Church of the Incarnation of Minneapolis, and the new Cathedral of Sioux Falls. St. Paul abounds in examples of his work. He was honored by the state of Iowa, whose official authorities invited him to make designs for the beautification of the state capitol at Des Moines.

Mr. Masqueray never married. I can always remember his devotion to his mother, the only member of his family. My early recollection of him is as a comrade and fellow worker. The friends of his later life tell me he never lost his kindly and charitable manner, anxious to please, careful never to offend, and that one feature in his life, well known to all who were acquainted with him, was his continuous and kindly bearing toward his aged mother. He was to her the most unselfish and most devoted of sons.

The entrance of French culture into American life as a dominating influence began, of course, with the work of Richard M. Hunt, who was followed to this country by the men who were the first members of the modern Beaux-Arts group. Among these men, most of whose names have become famous in the history of American architecture, Masqueray's is one of importance. He was one of those who brought the academic training and culture of the Beaux-Arts to the fertile soil of America, and as we now contemplate the varied and rapid development of architectural ornament in this country, we must ascribe to this early group the influence that is second only to the powerful movement of the Georgian group in the pre-revolutionary days of the then narrower American community.

Looking at the period when Mr. Masqueray came to this country, from our present viewpoint, it is difficult to measure adequately the influence of that enthusiastic coterie of young men, either of French birth or French training, who were pioneers in what is now recognized as the modern school of American architecture.

After Mr. Masqueray left New York he carried into the upper Mississippi Valley the force and influence of his firmly held academic culture, and it is difficult to measure the effect of his trained art upon the communities of the Valley. In communities which were not always sympathetic he maintained with a splendid persistence his well-founded ideals of the architectural art and has left in enduring materials the indications of his true culture.

On May 26, 1917, ended the life of our friend and fellow worker, Emmanuel Louis Masqueray.

THOMAS HASTINGS.

Herbert Langford Warren

Fellow of the American Institute of Architects, 1891.
Died, June 27, 1917.

Herbert Langford Warren, professor of architecture at the Department of Architecture at Harvard University, died suddenly, June 27, at his home in Cambridge at the age of sixty years. He was born in Manchester, England, March 29, 1857. The first nineteen years of his life were spent in England and on the Continent, his schooling being obtained in England, at Gymnasia of Gotha and Dresden, and at Owens College, Manchester. His family returned to America in 1876, and after two years' study at the Massachusetts Institute of Technology, and four or five years in the office of H. H. Richardson, he again went abroad for a year's travel, after which he returned to open an office in Boston, and later, in Troy, N. Y., where he built the Orphans' Asylum and other buildings. In 1893 he was appointed instructor in architecture at Harvard, assistant professor in 1894, and professor in 1899. He has been continuously directing head of the School at Harvard, the beginning of which was marked by his first appointment as assistant professor.

On November 8, 1887, he married Catherine Clark Reed, daughter of the Rev. James Reed, of Boston, and is survived by his widow and their four children. He was a Fellow, and one time a Director of the American Institute of Architects, and for several years Secretary of the Boston Chapter. Throughout his connection with the Department of Architecture at Harvard he has kept in touch with active practice as a member, in earlier days, of the firm of Warren, Smith & Biscoe, in recent years Warren & Smith.

OBITUARY

No one has more truly given his life in the great war for freedom and justice than H. Langford Warren, whose strength gave way under the strain of service to this cause. Into a life already filled with the most arduous and exacting work, the work of a great teacher, he crowded innumerable activities directly connected with the war. It was he who was largely responsible for the fine address of five hundred representative citizens, the first public expression of the position now definitely taken by the United States. He was one of those who formed the American Rights League, which organized and conducted the mass meetings, at one of which Professor Royce's now well-known address was given.

Anyone who has worked on the inner controlling circles of such activities knows what a demand they make on a man's concentrated attention. All this came in addition to his normal work, and it is little wonder that his frail body failed under the strain. As truly, then, as if he had died in the trenches, has he given his life that freedom, truth, and justice should prevail.

Of the many things that testify to his architectural knowledge and skill the truest and greatest is that which is unseen. The refining influence he exerted on the many men who have had the benefit of his instruction during his twenty-five years of service to Harvard is his permanent and lasting memorial. The spirit of a true-minded gentleman ran through all he did. He set constantly before himself the high ideals which governed his life. No one could come into any relation with him without feeling the crystal sincerity and truth of the man. In days when political, business, and social life all put a premium on insincerity, when all applauded the smooth-spoken utterance of high-sounding phrases, it was refreshing to find a man like Warren who was utterly and entirely true.

To the Harvard School of Architecture his loss is almost irreparable. During all his years there he has lectured on the History of Architecture, and as he grew and matured, more and more did these lectures come to be perfect in form, accurate in knowledge, and of vital importance, instinct with the spirit of the artist who loved beauty in all its varied expression.

Without this spirit all teaching is valueless, and it is especially true of the teaching of the arts. If it is a choice between accurate knowledge and the spirit, one would unhesitatingly choose the latter, but Warren was one of those rare teachers who had both.

His absorption in his teaching left him but little time for active practice, but he was able in that little time to put his own fine stamp on the work which came from his office. He had a catholic appreciation of all that was beautiful and instinctively avoided the popular and passing fashions of the day for the enduring styles which have passed the test of time. Although brought up in Richardson's office, no Romanesque or pseudo-Romanesque came from his hand. He worked freely and with sympathetic knowledge in the various phases of medieval architecture, leaning naturally toward the English of his birthplace, and with equal insight he loved and interpreted Lombard and Tuscan work.

Besides his family, he leaves a host of friends, his contemporaries, and his pupils, and in the hearts and lives of these is his best and greatest monument.

R. Clipston Sturgis.

THE professional work and achievements of Herbert Langford Warren are known to his brother architects, but only those few who were closely associated with him know how much of his time and strength and his talents he gave, since this war began, to the work of awakening the conscience of the American people to the justice of the cause of the Allies. From the very beginning of the war Herbert Warren saw clearly the moral issues involved, and that these concerned not only the interests of America but the very "future of civilization," to quote his words. Holding such a belief, he could not remain passive. He joined a small group which primarily had for its object the dissemination of literature throughout the country, by articles in the press and pamphlets and in other ways that would create a knowledge of the issues of the war and awaken the American conscience. Warren himself contributed many articles and helped by counsel and in other ways. To understand his activities and personality it is necessary to say something of the work that was done.

In the early months of 1915 this group of men felt that inasmuch as the sentiment of Americans was not correctly represented by the official attitude of neutrality which our Government felt constrained to adopt, the American conscience should not remain silent when such great moral issues were at stake, but should speak out and give some public formulated expression of its belief. At this late date, when we are at war and when the whole psychological setting is changed, this seems a simple and natural thing to have done. But at that time there was a great diversity of opinion regarding the wisdom and even justification of this course, and many leading men who later became outspoken hesitated and held back. It is difficult now to understand this hesitation. But we must remember that though it was then generally recognized that the vast majority of unhyphenated Americans were in sympathy with the Allies, the Government was neutral. This fact had a dominating moral influence with many.

Conferences were held with a number of prominent men in Boston and New York, all strong pro-ally in their sympathy. Opinion was about evenly divided. For one reason or another some thought that individuals should remain silent so long as our government was neutral. With many I have always believed it was a case of "cold feet." Warren never wavered in his conviction that Americans ought no longer to remain silent, that we owed it to ourselves to tell the peoples of the allied nations what our real sentiments were, thus answering the appeal of the "German professors."

Finally, after much consultation, an "Address to the People of the Allied Nations" was drawn up. The signatures were to be limited in number and so far as possible to representative Americans in every state of the Union. It came to be known as the "Address of the 500." Warren brought all his enthusiasm and energy to this task which for many reasons was no easy one. While the argument and matter of the "Address" were a composite of several minds and underwent, as must always be the case in such circumstances, several revisions, the phraseology and composition were Warren's. He wrote it. I think anyone who reads it will agree that in simplicity of style, purity of English, felicity of expression, and logical

exposition of facts it is a very remarkable document. The forcible presentation of the argument, the crushing condemnation of Germany, and the expression of lofty ideals which it breathes were all enhanced by restraint of statement. These characteristics were much commented upon by the foreign press. As a contribution to the literature of the war it is one which is of more than ephemeral value. The task of mere presentation of the brief for Americans and the Allies was difficult because it was necessary to avoid all criticism of our government and every expression which might invite dissent or criticism from expected signers and the public, and at the same time, to incorporate strength. In consequence of the skill with which he drafted the address Warren was later frequently called upon by his associates to write other statements and resolutions for publication. His command of English and power of exposition were seen to be quite unusual and were accordingly appreciated and used.

The final history of the "Address" would make an interesting story in itself, if this were the place to give it. I wish here merely to point out Warren's connection with the work which in itself was formidable, more so than one who has not attempted such things in times of public excitement, when opinions are divided, can imagine. The task of obtaining signatures of men prominent in and representative of their several communities throughout the United States was no light one. Some who were in whole-hearted accord with the "Address" hesitated to sign it on grounds of expediency or for other practical reasons, as they averred. Some distinguished men, known as representative Americans—our "first citizens"—throughout the United States, were unwilling to sign although they were known to be strongly pro-ally in their real sympathy. Since then I have often been unable to restrain a smile when some of these men, at a later period, have received great public applause because of their outspoken advocacy of an anti-German policy. But it requires little courage to follow. The presidents of our important universities and colleges were particularly desired to endorse the movement with their signatures. Most of them responded with alacrity, but the names of others are conspicuous by their absence. A study of the signatures is interesting from the names which such an examination shows to be absent, although, of course, it should not be forgotten that in some instances, by inadvertence, the sending of an invitation was overlooked.

On the whole, however, the "Address of the 500" met with an enthusiastic response from nearly everyone invited. It was the exceptions that were conspicuous.

Securing simultaneous publication in England, France, and throughout the United States in face of the refusal of the Associated Press to handle it was also a difficult task and involved much time, labor, and persistent endeavor. The "Address" was later extensively published in Russia, Italy, and Japan. Its effect in France and England, in particular, in causing a realization of the existing American sympathy for the cause of the Allies, was most happy. A grateful reply by 500 French Intellectuals was one response.

When at a later date the American Rights League was formed, Warren was one of the original founders and became one of the executive committee. The Boston Branch, originally under the name of the Citizens' League, was the first league of this kind to be formed, I think, in the United States. Warren was one of its most earnest and ablest counsellors and took an active part in its work. As will be remembered, a number of public meetings were held in Tremont Temple in support of the cause of the Allies—the first public meetings held for this purpose in this country.

Later he was chosen as one of the Boston representatives on the executive committee of a larger national organization, known as the "National Committee for America," to carry on similar educational work throughout the country. Considerable preliminary work in which Warren took an active part was done, but the breaking off of diplomatic relations with Germany made further work superfluous and brought the movement to an end. Looking back now it is surprising how diffident most of our public men were in taking part in this movement.

I mention all this to bring to mind certain fine traits in Herbert Warren's personality as they were manifested outside his professional calling in work which otherwise would be known to only a few. It was in this work that I was privileged to be brought into close touch with him. Indeed I learned to know him intimately only during these three years of war. But no one could be closely associated with him in common interests and sympathies without becoming strongly attracted by his lovable qualities and without admiring the simplicity, loyalty, and intellectual honesty of his nature. He was always ready not only to say "yes" when asked to take upon himself some extra burden, but to fulfil conscientiously the obligations which he assumed. If he undertook to do a thing you could feel assured that he would do it, and promptly and efficiently. He always could find the time and the strength to make the sacrifice. The secret was his loyalty to his ideals, his generosity and the spirit of self-sacrifice—qualities which the Nation is calling upon us all now to put forth.

It was the same sense of obligation assumed and which therefore had to be carried through at any cost which held him firm to his duties at Harvard. He would attend meetings without stint, even going for this purpose to New York as a matter of duty and returning the same day by a midnight train so that he would not have to "cut" a lecture to his students.

Another characteristic which impressed me was his charitableness and lack of resentment when men who professed great feeling and sympathy for the cause of the Allies and who since have received great praise for their espousal of the cause of civilization, refused their open, public support in these early days. Though some of us, less tolerant and forgiving, including myself, I fear, attributed this refusal to lack of courage, Warren never condemned but was always ready to find palliating reasons. His own courage and readiness to persist in the course he had mapped out for himself, regardless of lack of support where expected never wavered.

I have referred to his remarkable command of the English language. To me it was always a delight to listen to what was to my ears and, I believe, to others, his beautifully composed diction and well-formulated ideas accentuated by a clear and rarely precise enunciation. Whether he spoke or wrote, his English was, I think, of

unusual purity. He certainly had the faculty of expressing his views in the numerous conferences that were held where lively discussions of debatable questions sprang up, with remarkable clearness and force.

Notwithstanding all the disappointments and rebuffs, the friction and inefficiency bound to be experienced in the course of work of this kind, I never knew him to show impatience, or irritability, or discouragement, or uncharitableness toward those who did not come up to his standard. It was a delight to be associated with him, it was an object lesson to work with him, it was a privilege to have known him. "Forsan haec olim meminisse juvabit."

One cannot help feeling regret that he could not have lived to see the end of this great world struggle for righteousness and civilization by which his heart was so deeply moved and for the success of which he so fervently hoped and prayed—gave all of himself that he could give.

It is impossible to determine the influence of his personality or of his activities in the field I have sketched. But that it has been of large measure no one can doubt. And so remembering him, I reverently take off my hat to the memory of Herbert Langford Warren.

MORTON PRINCE.

Book Reviews

Color and Its Applications. Light and Shade and Their Applications.

By M. Lukiesh. Published by D. Van Nostrand Co., 25 Park Place, New York City. $3 each or $5 for both volumes.

A superficial examination of this book of 350 pages of highly technical discussion may not reveal much of seeming interest or importance to the colorist or architect, but one soon finds on more intimate acquaintance and, despite such formidable words as "spectrophotometer" and worse, much information of great value and intense interest. To quote Mr. Lukiesh:

"The artist has often shown an antipathy toward science, apparently under the impression that art goes further than the mere mixture and grouping of colors and shadows and produces effects beyond scientific explanation. By no means is it contended here that art can be produced by 'rule of thumb' or by scientific formulæ. Nevertheless, facts are the basis of all art and, while scientific investigation has not yet revealed all its hidden secrets, scientific explanations can be presented for many supposedly mysterious effects."

Except for the assumption that "art" and "painting" are synonymous, this is quite true; Mr. Lukiesh often succeeds in making it quite obvious, and anything that robs any art of its mystery is very much worth while!

Color discussion is often befogged by ambiguous terminology, and the chapter on "Color Terminology" clears up many points. The chapters on "Color Mixture" and "The Effect of Environment on Color" should be of much help to color workers. The chapter on "Color in Lighting" is of distinct value to architects and decorators, while the discussion of "Color Effects for the Stage and Displays" points the way into a field which has as yet been explored only on the edges. "Color Photography" is a clear exposition of the various processes of photography in colors; "Color Phenomena in Painting" and "Color Matching" contain useful information, while those interested in the alleged relation between color and sound will be interested in "The Art of Mobile Color." A description of the various colored media obtainable for experiments closes this rather formidable but interesting volume.

The companion volume on "Light and Shade" is neither as interesting nor as convincing as the first on "Color." Although some of the illustrations are valuable, much of the material in the second book has been more interestingly treated in the first. It is difficult to see how the chapters on "Light and Shade in Sculpture; in Architecture; in Painting; in Stage-Craft," can be very helpful in a constructive way to either the sculptor, the architect, the painter, or the designer of stage settings. The author's use of "shadow" and "cast shadow" is hardly an improvement over the more familiar use of "shade" and "shadow" as commonly understood by draughtsmen. The chapter on the application of light and shade in architecture convinces the reader that the customary method of designing for shadows cast by rays of light parallel to the diagonal of a cube is by far the nearest approach to average conditions in nature, but Mr. Lukiesh does not mention this custom. The last chapter, "Light and Shade in Lighting," shows the need of very careful study of this subject by and the value of thorough coöperation between architect and illuminating engineer, and contains some good advice and suggestions.—B. J. L.

The Livable House, Its Plan and Design.

By Aymar Embury II. Published by Moffat, Yard and Company, 120 West 32nd Street, New York. $2.50.

In this book of four chapters Mr. Embury speaks sensibly, logically and interestingly about the building of the livable house of moderate size. First, he discusses the necessary preliminaries involved, then styles and the choice of a style, next, the requirements of the plan, and, finally, materials and their comparative good and bad qualities. All this discussion is practical, very readable, and not in the least dry! The volume contains nearly a hundred illustrations, for the most part delightful full-page photographs of pleasing, successful houses, both old and new. Mr. Embury's discussions of the why and wherefore of certain styles and their characteristics, and of materials and methods, are both interesting and illuminating. Altogether, this book of 200 pages offers much information and inspiration to the prospective home builder and to his architect, to whom the small-house problem is perhaps the least remunerative but one of the most fascinating in his practice.—B. J. L.

The Situation in the Building Industry

AT its last meeting, the Kansas City Chapter adopted a resolution to request the Government to investigate the present high cost of building. Attached to the resolution was a summary of prices of certain materials during the three-year war period, the rising costs of which have been accelerated by our own entrance into the struggle.

Accepting the mounting price of steel as a conspicuous reflection of the many factors which the war has injected into the whole industrial situation—profit-taking through unusual opportunity, transportation congestion, labor cost and labor shortage—we may await the result of the Federal Trade Commission's investigation of steel prices with confidence that it will throw much light upon a situation which is now so obscure as to engender and nourish suspicions. The President, in his statement of July 12, frankly stated that profiteering is not only crippling the prosecution of the war but, in many lines, is materially restraining industrial activities, the successful continuance of which is just as essential in providing the money to pay for the war. As in every calamity the profit-takers are busy rifling the pockets of those who are helpless to prevent it.

But the general condition is well summed up in the current *Altantic* by Mr. Sidney Webb, for we may accept his narrative of the economic evolution in England as closely resembling what is bound to happen—part of it has already happened—in the United States.

The great problem in war-making, as in war-prevention, is to so distribute the cost that none shall profit but each shall pay according to his means and thus share inexorably in what is no longer disputed as a great national waste. Arrayed against any such solution is a pretty large element—an element which has so long regarded business as a profit-making rather than a service-giving function—that it is idle to expect any instant reversal to a truly patriotic spirit. To that element, profits take precedence over all things—even national peril! Let us recognize these things and not seek to cover them up as the weaknesses they are—but let us also admit that we shall not be able to correct them, except in a partial degree, by governmental investigation and restriction.

The building situation is clear: No work should be done which would hamper the work of war preparation and prosecution. On the other hand, it is, as the President plainly states, of the utmost importance that all industry be kept moving in close parallel to the true demand for legitimate needs. The country needs buildings of all kinds. How shall it proceed in order to meet that need in the fullest measure with no impairment of the production of war material? The solution of that question depends, first, upon the final calculations of the Government's present and future needs for war as a basis upon which to compute the price, kind and quantity of building materials, labor and transportation available for building, and, second, upon that form of patriotism such as will inspire all those in control of the manufacture and distribution of building materials with a desire to make a healthful building program possible. Given that desire, the question can be handled without any governmental investigation. It would be far better if, instead of tempting and incurring a price-regulative fiat, which has not worked out in other countries, manufacturers and distributors could meet and agree upon a patriotic basis.

All forms of production in this country are represented by well-organized associations. Why cannot these highly systematized forces be put at the service of the Nation instead of remaining either inactive or selfishly occupied with their own particular affairs? While it is no doubt true that some organizations of the kind described have studied the question from the unselfish point of view, the amount of activity of that kind seems lamentably small in the fact of the President's urgent request for coöperation. Here is an opportunity to make such a demonstration of patriotism as the President has asked for.

Our suggestion is this: That every such organization meet and consider in what manner the industries it represents can be put wholly at the service of the Nation—and by wholly we mean just what the President means. We now know that the war will be won, not by the heroism of men but by the perfection of organization. Who can contribute more to such an end than those who have spent years in organizing the industries of our country into the strong group associations which now so widely obtain? It would seem pathetic if we cannot profit from England's example! Why wait for the Government? Why not meet it more than half way?

Structural Service Department

In connection with professional societies and organized bodies working toward the improvement of building materials and methods, and the following Committees of the Institute:

BASIC BUILDING CODE

William B. Ittner, *Chairman* . . . St. Louis
W. W. Tyrie . . . . . Minneapolis
G. F. A. Brueggeman . . . . . St. Louis
Owen Brainard . . . . . New York
Robert Stead . . . . . Washington
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Robert D. Kohn, *Chairman* . . . . New York
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Julius Franke . . . . . New York

MATERIALS AND METHODS

Thomas Nolan, *Chairman* . . . . . Univ. of Pa.

(Each Chapter has a corresponding member who is chairman of the Chapter Subcommittee)

July, 1917. Serial No. 7

A part of the service of this Department will be to furnish inquirers with additional information, titles of books, names of authors or publishers, copies of articles, or in any way to afford help to architects wishing to ascertain the latest data available in connection with any material or method. For this service, address the Journal of the A. I. A., the Octagon, Washington, D. C. The service is free, except where clerical expense is involved, in which case a small fee will be charged to cover actual cost. The inquirer will be advised of the amount of the fee before any research work is undertaken.

The Journal of the American Institute of Architects
The Octagon
Washington, D. C.

Structural Service Department

D. KNICKERBACKER BOYD, *Associate Editor*

GAS ISSUE

CONTENTS

This, the second of the Mechanical Equipment group of four issues, is devoted to the utilization of gases and vapors in and around buildings. The various gas interests of the country and architects and owners as well are, in this connection, greatly concerned with the proper installation of piping to make available the manifold uses to which gas may be put. These are potential as well as actual, and emphasis has been laid in this presentation on: first, the feature of supplying buildings with gas for all purposes; and, second, the proper piping to secure adequate service throughout.

In the existing dearth of consulting engineers on gas equipment for buildings, the national associations mentioned and the local organizations, of which there are many, may be relied upon to supplement the information given and to coöperate in carrying forward the various recommendations described.

The next issue will treat of "Plumbing," and the following issue of "Heating and Ventilation."

INDEX TO SUBJECTS TREATED IN THIS ISSUE

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7A1 Gas Societies and Associations

7A2 *American Gas Institute.*

Secretary: George G. Ramsdell, 29 W. 39th St., New York City.

(See also "Other Gas Organizations" (7B) for those affiliated.)

Publications:

(*a*) "Proceedings," published annually.
(*b*) Certain committee Reports of an exhaustive nature are published separately, especially those relating to standardization of methods or materials.
(*c*) Of this class the "Gas Chemists' Handbook" is a notable example.
(*d*) "Standard Specifications for Cast Iron Pipe and Special Castings." These embrace the results of work which covered a great many years and was first started by the Society of Gas Lighting about 1890. The American Gas Light Association reported a new standard in 1906, and the American Gas Institute in 1911 and 1913 adopted these standards. (See 7E3*f*.)
(*e*) Monthly bulletin entitled "Gas Institute News." Contains: an educational article in each issue, which articles when completed will form a textbook on the manufacture and distribution of both coal and water gas.
The "Proceedings" and "Gas Institute News" are furnished free to members.
(*f*) "Bulletin of Abstracts." A classified record of the best technical articles appearing in the domestic and foreign journals, arranged for filing in card-index form.
(*g*) Report of the Committee on Refractory Materials.
(*h*) "Bibliography of Refractory Materials."
(*j*) "The Installation of Cast Iron Street Mains."
(*k*) Report of the Committee on Supplying Large Buildings with Gas or Piping Large Buildings. Reports of 1914–16.
(*l*) Committee Reports on Housepiping. 1915–16. (7E2, 3 and 4.)
(*m*) "Proper Specifications for and Inspection of Interior Piping," Turner (7E1*b* and 7E3*c*).
(*n*) Reports of Committee on Utilization of Gas Fuel Appliances.

The Institute is the national technical gas association, its membership embracing the prominent gas engineers and managers of the country. The technical work is handled through committees which also secure papers and submit the results of their work in the form of reports for presentation at the annual convention. These are published later in the "Proceedings" each year.

In addition to its technical activities, the Institute has also taken a leading part in matters of importance pertaining to the relations of the gas industry to the public, working through its committees in coöperation with various public service commissions and regulatory bodies.

7A3 *National Commercial Gas Association.*

Secretary: Louis Stotz, 61 Broadway, New York City.

Publications:

(*a*) "Proceedings" of annual meetings.
(*b*) "Monthly Bulletin." Contains papers, discussions, and general information. One department is devoted to "Gas Literature for the Busy Man," and gives a list of journals which will be found valuable if kept for reference. Subscription, 50 cents per year. Furnished free to members.
(*c*) "Industrial Fuel Reference Books." A series of pamphlets issued during 1916 and 1917, dealing with the "Application of Gas" to various needs in the industries and within buildings. Prices, from 20 cents to 50 cents each.
(*d*) "Utilization of Gas Appliances." A series of eleven pamphlets, covering in a most thorough manner the development, construction, and installation of all domestic fuel appliances. Price of complete set $2.50.
There is available only a limited number of copies of these books, which are especially valuable as reference works.
(*e*) Pamphlets entitled "Lessons," which accompany the "Practical Gas Education Course" elsewhere referred to. Subscription rates given on application.
(*f*) "The Gas Equipment of the Home." 48-page illustrated booklet giving information on the many uses of gas in the home. It treats of the following:
1. Plan of House Showing Piping Outlets.
2. Gas Appliances for Each Room in the House.
3. Hygiene of Gas; Its Aid in Ventilation.
4. Modern Gas-Lighting; Treatment of Different Rooms.
5. Plan of an Ideal Kitchen; The Modern Gas-Kitchen.
6. Water-Heating by Gas; The Most Rapid System of Heating Water.
7. Outdoor Residence Lighting.
8. Flue Connections.
9. Gas-Furnace Heating and Room-Heating.
10. Gas Laundry Equipment.
11. Sterilizing Water by Gas.
12. Refuse Destroyer.
13. Garage-Heating by Gas.
14. Vacuum Cleaning by Gas.
15. Refrigeration by Gas.
16. Heating of Kitchen from Cellar Furnace.
17. Room-Heating Calculations.
18. Gas for Domestic Science Equipments.
19. Gas Piping, Piping Schedule, Meters.

(*g*) Certain committee reports are also issued separately, such as Report of the 1916 Committee on Standardization of Gas Appliance Specifications.
(*h*) Standard Gas Range Specification.
(*i*) Standard Gas Fixture Specification.
(*k*) Miscellaneous publications, which will be referred to under other subdivisions.

Any of the above, except the "Proceedings" and those publications with prices affixed, may be had without charge by a practising architect or other qualified inquirer upon application to the Secretary.

This Association was organized in 1905 to act as a clearing-house of commercial information in the gas industry, to develop the use of gas, to promulgate methods for its sale, and to encourage the manufacture of efficient and suitable appliances for the use of gas for light, heat, power, or whatever proper purpose intended.

7A4 *International Acetylene Association.*

Secretary: A. Cressy Morrison, 42d St. Building, New York City.

Publications:

Beginning with August, 1917, the *Acetylene Journal*, established in 1899, and the official organ of this Association, will be published in two separate editions monthly:

(*a*) *Journal of Acetylene Lighting.*
(*b*) *Journal of Acetylene Welding.*

These contain articles concerning the generation and ultilization of this product and (*c*) a list of textbooks and other publications relating to acetylene and oxy-acetylene subjects.

The organization is composed of manufacturers of apparatus for the use of acetylene, manufacturers of carbide and oxygen, and all interested in the advancement of the acetylene industry. Its activities are devoted to the broader questions of the use of acetylene with the greatest possible safety.

7B Other Gas Organizations

The National Commercial Gas Association and the Society of Gas Lighting have no affiliated associations. The following associations are affiliated with the American Gas Institute: Illinois Gas Association, Horace H. Clark, Secretary, 1325 West Adams St., Chicago, Ill.; Indiana Gas Association, James W. Dunbar, Secretary, New Albany, Ind.; Iowa District Gas Association, T. B. Genay, Secretary, Des Moines Gas Company, Des Moines, Iowa; Michigan Gas Association, Clark R. Graves, Secretary, Lansing, Mich.; New England Association of Gas Engineers, N. W. Gifford, Secretary, East Boston, Mass.; New Jersey State Gas Association, O. F. Potter, Secretary, Public Service Gas Company, Newark, N. J.; Pennsylvania Gas Association, L. R. Dutton, Secretary, Wyncote, Pa.; Wisconsin Gas Association, Henry Harman, Secretary, Milwaukee Gas Light Company, Milwaukee, Wis.; Southern Gas Association, E. D. Brewer, Secretary, General Gas Light Company, Atlanta, Ga.

There is also the Society of Gas Lighting, which was instituted December 1, 1875, and therefore is one of the oldest of the gas associations, but is more of a social organization than a technical one. George S. Ramsdell of New York is secretary.

There is also the Natural Gas Association which devotes its activities to considerations affecting the distribution and utilization of this product of nature.

7C Supplying Buildings with Gas

Dismissing from present consideration the properties, manufacture, and distribution of natural and artificial gases (which will be elsewhere referred to), the matter of supplying all buildings with gas for the fullest utilization thereof, whether for illumination, fuel, power, or heat, is of the utmost importance to architects, builders, and all occupants.

(For data on materials and methods of piping buildings for gas see 7E1, 2, and 3.)

1. A committee of the American Gas Institute, then called the Committee on Piping Large Buildings for Gas, presented at the annual meeting in 1914 a report of much interest. This report is incorporated in the Proceedings (7A2*a*) for 1914, and is separately printed (7A2*k*).

The following extracts are given for their suggestive value:

"As a purely financial investment it cannot be denied that the more complete the service that can be offered the more valuable as a rental proposition the building will become."

"Unless, therefore, the building is piped throughout on erection, this lack of provision may become a serious handicap in so far as the rental feature is concerned and may become a cause of loss of revenue."

"The use of gas is constantly being extended to new applications, and this development may be logically expected to continue indefinitely."

"Development in the application of gas to space-heating, by direct radiation, promises much, and this method, . . . is sufficiently advanced to warrant the belief that in time it will come into general use, and such a possibility alone should have weight in planning the gas-supply systems for new buildings at the time of erection."

"Nevertheless, it is a fact that the too general practice at the present time is to erect the modern large building without making any provision for the utilization of gas as a source of light, fuel, and power. This lamentable condition can only be due to the lack of information on the part of the architect, owner, or builder of the many advantages of gas as an agent for light, fuel, and power, as well as the failure to have properly emphasized the considerable financial expenditure and inconveniences necessary to remedy this defect after the building is completed."

2. Desiring to emphasize the necessity for a standardized method of procedure in the matter of proper piping of buildings for gas, the first essential in any utilization of gas-supply, the Editor of the Structural

Service Department, previous to the inauguration of same, took advantage of an invitation to prepare a paper for the Mid-Year Conference of the National Commercial Gas Association, in June, 1916. Therein, the following reference to the subject was made:

"The first and most necessary step in our coöperation is that you furnish architects with information as to methods of installation for the piping of gas in all buildings. What form can this information take?"

"I would place at the very head of the list a 'National Electrical Code' in the gas industry. That is a misnomer, of course, but it will illustrate to you what I mean; namely, one dominant controlling factor in the installation of the arteries of service."

"A National Basic Code, with a piping schedule of minimum standards for sizes, lengths, and weights would, therefore, work to the great advantage of all good master plumbers and contractors who would be enabled to estimate under stable and equable conditions and to install their work without being at the mercy of varying individual judgment as to 'proper sizes,' etc."

"The piping schedule which your Association has this year adopted is an important step in the right direction. I feel much honored to have had, as the Consulting Architect on Sweet's Catalogue Service, a hand in its preparation, and I hope that it may be taken up and criticized by the American Gas Institute, the American Institute of Architects, and all other interested bodies, and later adopted. But even as it is, if put to use by all architects and others to whom it is in this manner made available, it will be of incalculable assistance and value, for it may now be written into specifications."

3. See various sections of "Gas Equipment of the Home," the titles of which are given under 7A3*f*.

4. See Monthly Bulletin of the N. C. G. A. (7A3*b*) for April, 1917, in which is reprinted an article from the "Real Estate Bulletin" for January, 1917, recognizing the importance of supplying all buildings with gas by means of adequate piping for full equipment. In same is quoted data on this subject from *The Valve World* for April, 1916.

5. See "The Record and Guide," January 27, 1917. Article by Robert B. Mahn on "Coal Situation—Should Owners Install Gas Piping Much Possible expense might be Avoided."

7D1 The Proposed National Gas Safety Code

(NOTE.—The following information concerning the Code has been especially prepared for the Journal by the U. S. Bureau of Standards.)

(*a*) For some time the U. S. Bureau of Standards has had in preparation a National Gas Safety Code which shall cover a corresponding range of subjects and accomplish the same ends in safety to life and property as both the National Electrical (Fire) Code, which has for many years been the recognized authority as to standards of construction for electrical utilization installations within buildings, and the National Electrical Safety Code which the Bureau of Standards developed through an unprecedented coöperation of the electrical industry, and has recently published. The Gas Safety Code will thus have a double function, namely, fire-prevention and protection to life. The hazards which result from the manufacture, distribution, and utilization of gas are of such nature that generally the fire-hazard and the life-hazard cannot logically be separated. It is desirable, therefore, that, in discussing any phase of the general subject, both the fire-risk and the hazard of life should be recognized by the Code, and that rules be drawn to minimize both in so far as is practicable.

(*b*) The Bureau of Standards is carrying out this investigation and in the preparation of the Code desires to serve as a national coördinating agency to the end that the resulting Code will be acceptable and adequate, not only from the standpoint of the user of gas, but also for the casualty and fire insurance interests, the gas companies and their employees, and the gas appliance manufacturing and selling interests. Because of the wide variety of problems which arise in the work in different parts of the manufacture, distribution, and utilization of gas, and also because of the varied nature of the gases in commercial use, it has seemed desirable to arrange the Code so that each part will, in so far as is practicable, be addressed to a particular interest or group of interests and be convenient for their use. The Code is therefore divided into ten parts as follows:

1. Manufacture. 2. Distribution. 3. Appliance Design. 4. Gas Fitting. 5. Appliance Installation. 6. Natural Gas Wells and Field-Stations. 7. Acetylene. 8. Bottled-Gas Systems. 9. Blast-furnace, Producer, and Gasolene Gas. 10. Utilization—Information for Users.

(*c*) Parts 1 and 2 deal respectively with the production of manufactured gas and its distribution to the premises of the customer. They are therefore primarily of interest to the gas companies and their employees. Part 3, having to do with the design and construction of gas-consuming appliances, is addressed to the makers of such apparatus and to those handling it either in a wholesale or a retail way. Part 4 deals with gas-fitting and is primarily addressed to the gas-fitter or plumber who is engaged in the installation of the piping, but is also of importance to the architect and builder. Part 5 deals with the installation and adjustment of appliance and is addressed to the same interests as Part 4. Part 6 has to do with the production of natural gas at the wells and its transmission through field pumping stations and high-pressure mains to the limits of the municipality. Part 7 is of primary interest to the users of acetylene and is addressed to the manufacturer of generating and other equipment, the distributer and the users of the gas. Part 8 deals with bottled-gas systems (Pintsch, Blau, Gasing-head gas, etc.). Part 9 is of interest both to the steel industry and to industrial plants since it deals with blast-furnace and producer gas, and also refers to the use of gasolene gas. Part 10 is addressed to the user of domestic and industrial gas-consuming appliances, and is largely non-technical in its nature.

(*d*)The two parts of the Code of especial interest to the American Institute of Architects are Parts 4 and 5, which deal particularly with installations on the gas consumers' premises. In brief they are as follows:

(*e*) Part 4 of the Code includes all regulations as to gas-fitting and the piping of buildings beyond the service meter. This part is addressed to gas-fitters, plumbers, and others who install piping on the consumers' premises, and its enforcement is a matter of piping or building inspection. It properly belongs under the jurisdiction of those municipal departments which should have ample jurisdiction to forbid the use of dangerous equipment and require removal of such equipment or discontinuance of gas service until proper alterations have been made to render the installation safe for the users from the standpoint of fire-prevention. The responsibility for new work being properly done, should, however, rest upon the fitter.

(*f*) Part 5 covers the subject of the installation and adjustment of gas-consuming appliances, gas-lighting fixtures and their accessories. These rules are addressed to gas-fitters, plumbers, appliance dealers, and others who make such installations on the consumers' premises. The enforcement of this part is a matter of appliance and building inspection and, like Part 4, properly belongs under the jurisdiction of municipal departments. Although the fitter should be entirely responsible for the work being properly done, the choice of appliances to be installed can be placed upon him to a limited degree. Where improper appliances are selected by an owner or architect and given to the fitter for installation, he should, if aware of the fact, advise the owner or architect as to the local regulation or desirable procedure to be followed in respect to these appliances, but if the owner or architect insists

upon the installation of such improper equipment they should be held responsible. The same authority covering the installation of dangerous appliances should be exercised by the municipal authorities as in the case of Part 4.

(*g*) Part 4 is approaching completion, and it is to be hoped that it and Part 5 will be in the hands of those interested for trial use within a short time. After such thorough trial, the Code will be amended where necessary before final recommendation by the Bureau and its conferees, in order to render it of greatest practicability, and it is the intention to keep the Code up to date whenever additional matter is deemed necessary or as good practice demands.

(*h*) The Bureau has been fortunate in having associated with it in this work representatives of the various professions and industries involved. The American Institute of Architects has designated Messrs. D. Everett Waid and Julius Franke as advisors. The American Gas Institute, the National Commercial Gas Association, the Natural Gas Association, the National Fire Protection Association, the National Safety Council, the Public Health Service, and National Association of Master Plumbers have likewise coöperated, and the Bureau is glad to acknowledge its indebtedness to all of these various organizations for their assistance.

(*j*) It is hoped that when the Code is completed it will have the approval and sanction of all interested branches of the Industry so that it may be adopted by state and municipal authorities throughout the country as a reasonable working standard and thus will make unnecessary many diverse sectional specifications, such as preceded the National Electrical (Fire) Code, and have been more or less delaying the universal adoption of the National Electrical Safety Code.

7E Piping Buildings—Materials, Methods, and Cost

See, also, the publications mentioned under supplying Buildings with Gas 7C in all of which piping is treated.

7E1 *Information Obtainable*

(*a*) "Mechanical Equipment of Federal Buildings" (6L1*e*). Chapter V, "Gas Piping," contains a sample specification such as is used by the office of the Supervising Architect of the U. S. Treasury Department for a new building. Pp. 193–196.

(*b*) See "Proper Specifications for, and Inspection of, Interior Gas Piping" (7A2*m*). Written for the Distribution Section of the ninth annual meeting of the American Gas Institute, October, 1914, by A. E. Turner.

This paper is printed in the "Proceedings" (7A2*a*) and may be separately obtained from the Secretary.

It includes "Necessity for Standard Specifications," "Present Practice in Some Large Cities," "Suggested Specifications," "Piping Schedules," and concludes with a table of "Comparison of Actual Sizes of Wrought Iron Pipe with the Theoretical Size."

(*c*) "Architects' and Builders' Pocket Book," 1916, F. E. Kidder, pp. 1345–1350; Section on "Illuminating Gas and Gas-Piping" contains information on varieties of gas and gives General Principles and Requirements for Piping a House for Gas, with Rules and Table for Proportioning Sizes and a diagram piping.

(*d*) "I. C. S. Handbook for Plumbers and Fitters." See section on Gas Fitting which contains data on size of pipes, installation and testing, and acetylene gas-fitting.

(*e*) See "I. C. S. Building Trades' Handbook," p. 376, for information on cost of gas-fitting.

(*f*) See N. F. P. A. "Index" (3A3*h*5) for reference to information on "Gas Mains."

(*g*) See "The Installation of Cast Iron Street Mains" (7A2*j*).

(*h*) In "Proceedings" of the N. C. G. A., 1916, is a paper entitled "Adequate Piping of Buildings," by W. T. Rasch, with discussions which followed it.

(*j*) *Piping Symbols.* No standard set of symbols for marking gas outlets seems to have been developed.

1. Gas outlets in combination with electric are, however, shown by the "Standard Symbols for Wiring Plans" mentioned under 6E4*a*.
2. A "Key" to the symbols indicating gas outlets throughout a typical two-floor plan of modern dwelling is shown on p. 6 of "Gas Equipment of the Home" (7A3*f*1).
3. "Standard Symbols for Gas-piping Plans" are shown on p. 1359 of "Kidder's Pocket Book" as referred to under 7M2.

7E2 *Practice Recommended or Suggested by*

(*a*) American Gas Institute:

1. See extracted comments from the Report of the Committee on Piping Large Buildings for Gas, under 7C1.

2. This report also contained the following:

Piping Necessary.—The Committee realizes that a detailed table showing the size of risers, size of branch piping, number and size of fuel power and lighting outlets for various classes and size of buildings and for various spaces in them would be a great aid to the gas manager in working out his problems. However, the compiling of such a table would involve so many variables, and such a table would have to be in such great detail, in order to satisfactorily meet all conditions, that it has been thought advisable to endeavor only to give a few general suggestions which it is believed can be followed with satisfactory results. For this purpose the space in large buildings has been divided into four main classes and the outlets necessary for each class given in a general way.

Classes of Space.—(1) Large areas in loft buildings used for storage or manufacturing purposes. (2) Large rooms in public or office buildings used as assembly halls, courtrooms, large offices and for miscellaneous purposes. (3) Rooms in office buildings used as offices. (4) Rooms in hotels and apartments used as reception-rooms, living-rooms, bedrooms, etc.

Outlets to be Installed.—(1) This is generally a case of exposed piping. Baseboard outlets (not less than 1¼ inches) should be installed at reasonable distances or to suit occupancy. Proper outlets should be installed for the lighting system. (2) One ample baseboard outlet (not less than 1¼ inches) should be installed for any possible future supply for gaseous fuel. Proper outlets should be installed for the lighting system, and modern attractive gas fixtures or combination gas and electric fixtures so designed that modern gas burners may be as easily and attractively used on them as may electric lights. (3) Usually one baseboard outlet (not less than ¾-inch) should be installed for connection of portable light or possible use of gaseous fuel. One or more ceiling outlets for the lighting sysem with fixtures as outlined in (2). (4) The larger rooms should be provided as in (2). The lighting system should also be as outlined in (2). The larger living-rooms and bedrooms should preferably have more than one baseboard outlet.

Cost of Piping.—The Committee has analyzed the cost of piping many buildings brought to their attention, from the simple case of piping a loft building, where the number of outlets is few, due to undivided space, and therefore the branch lines on each floor few in number, to the case of the complete piping of large office buildings for lighting outlets, baseboard outlets, fuel, and power requirements.

(A list of buildings and comparative prices is then given in the report. These figures, both for the cost of the buildings and for gas installations would have to be proportionately increased to compare with prices now obtaining.)

From these typical, practical examples it can be seen that the gas-piping installation in a modern building, if put in at the time of erection, amounts to an extremely small figure, varying from 0.128 per cent to 1 per cent of the total cost of the structure for buildings varying from a loft building with its small number of outlets to the most elaborate piping of a modern office building.

3. Report of the Committee on Gas House-piping, as submitted to 1915 annual meeting of the A. G. I. (7A2*l*).

"The rules are divided for convenience into general specifications, building services, riser locations, outlets, fastening pipe, running of pipe in connection with walls, floors, etc., and the testing and inspection of piping."

A section is also devoted to rules and tables with explanations.

4. Report of the Committee on Gas House-piping, as submitted 1916.

This is an extension of, and elaboration upon, the previous report with General Specifications, Rules, and Tables, so formulated that they would be applicable, with very minor changes, to any situation, the final decision in any doubtful case resting with the gas company.

While it expressly stated that it is a tentative specification only, and not endorsed by the American Gas Institute, it may well be looked upon, pending the final issuance of the National Gas Safety Code, as a standard to be followed in writing specifications for gas installations, where local building codes do not contain specific requirements, or for incorporation in specifications as the present standard to be followed with respect to all matters of workmanship and procedure.

(*b*) National Commercial Gas Association:

1. See "Piping Schedule" referred to under 7C2 and printed on p.

1296 of "Sweet's Architectural Catalogue," 1917, followed by "Explanation of and Directions for Using the Piping Schedule," and suggestions for outlets to be installed, appliances which may be used, and information on the general use of gas.

This is also issued as a reprint obtainable upon application to the Secretary.

(*c*) National Board of Fire Underwriters:

1. "Building Code" 1915, recommended by the N. B. F. U. (3A4*d*1). Sections 259 and 260 relate to Installations of Gas Pipes and Gas Appliances and contain valuable recommendations to be followed.

2. "Dwelling Houses" (3A4*d*3). Another Code by the N. B. F. U. In Section 50 contains similar recommendations.

(*d*) Proposed National Gas Safety Code. Read paragraphs (*e*) and (*g*) under 7*d*1 for informative data and recommendations shortly to be issued by the U. S. Bureau of Standards looking toward an eventual standardization of piping and fittings.

7E3 *Standards to be Followed*

(*a*) By the Treasury Department, U. S. A. (Office of Supervising Architect):

1. In "Mechanical Equipment of Federal Buildings" (6L), under "General Instructions Issued to Draftsmen," p. 365, it is stated: "All buildings must be piped for gas, even though there are no local gas works. This is a special departmental requirement."

(*b*) The building codes of such cities as prescribe any regulations for gas-piping will naturally govern installations within the municipal jurisdiction. Some cities leave the matter entirely in the hands of the local gas companies, and in all cases where gas-supply is available inspection is made to determine the tightness of the supply-pipes before gas will be turned into the buildings. There remains, however, the installation beyond or in advance of service mains to be taken care of, and in order that the piping may be adequate and that equable conditions may prevail in the estimating specifications, should always provide that the selected requirements and schedules referred to under "Practice Recommended or Suggested by" (7E2) should be followed and the completed installation be tested out as therein provided before any plastering is done.

(*c*) "Present Practice in Some Large Cities" will be found covered in "Proper Specifications for and Inspection of Interior Gas Piping" (7A2*m* and 7E1*b*).

(*d*) While the requirements before mentioned cover quite fully methods of installation and the manner of workmanship, there appears to be a lack of exact definition as to the standards of quality for the steel or iron pipe to be used inside of buildings.

1. In report of the Committee on Gas House-piping (A. G. I., 1915) occurs the following:

Pipe and Fittings.—All pipe used should be of the best quality full-weight wrought iron or steel and free from defects. All fittings (except stop-cocks or valves) should be of full-weight malleable iron. Galvanized fittings are preferable.

2. In the 1916 report of above Committee declares as follows:

Pipe and Fittings.—All pipe used shall be standard, full weight, of the best quality wrought iron or steel, and free from defect. All fittings (except stop-cocks or valves) shall be of best quality malleable iron. Galvanized fittings will be permitted and fittings galvanized on exterior only are preferred.

(*e*) With respect to "Standards" for wrought or steel pipe used inside buildings, and for certain information on the subject of pipe, see April Journal 4F1, 4F2, and 4F3, especially 4F1*f*, which states that pipe will be more fully treated under later Serial numbers.

(*f*) The "Standards" for cast-iron gas-pipe used outside of buildings are, however, quite definite.

1. "Standard Specifications for Cast Iron Pipe and Special Castings," American Gas Institute (7A2*d*); "Bell and Spigot Pipe and Special Castings," adopted 1911; "Flanged Pipe and Special Castings," adopted 1913. (These are quite independent of other standards for cast-iron pipe which will be referred to in next Serial number.)

(*g*) For notes on electrolysis in connection with pipes, see 6N.

7F Gas and Its Utilization in Buildings

On the properties of the various gases and on the methods of production and use there is a vast amount of lierature which lies outside our province to describe.

Reference will be made to certain publications, however, wherein these subjects are covered in connection with the general application of gases to industries connected with building construction or to their utilization within or adjacent to buildings.

For convenient reference see Gas Appliances in General 7H, included in which some of the applications have been placed under separate subdivisions such as for heating of space, heating of water, cooking, and illumination.

Other sources of information giving descriptions of products, their storage, distribution, and utilization, will be listed under the following main heading entitled:

7G Properties, Power Equipment, and General Uses

1. The various bureaus of the United States Government at Washington issue circulars, bulletins, technical papers and other publications which contain authoritative information of the widest range, all of which may be obtained from the Superintendent of Documents, Washington, D. C. A list of the most important of these, as concerns gas investigations and data, mostly of interest to the producer rather than the consumer, is given in the Monthly Bulletin of the N. C. G. A. (7A3*b*), May, 1917, p. 291, and June, p. 342.
2. The "Gas Chemists' Handbook" (7A2*c*) and other publications of the American Gas Institute, including the "Bulletin of Abstracts," a classified record of technical articles (7A2*f*).
3. "Industrial Fuel Reference Books" (7A3*c*) and other publications of the National Commercial Gas Association, including "Gas Equipment of the Home" (7A3*f*3).
4. Also, "Utilization of Gas Appliances" (7A3*d*), No. 10, entitled "Principles of Industrial Fuel."
5. Various periodicals and current publications covering subjects under this general heading are listed in each issue of the "Monthly Bulletin" of the N. C. G. A., as mentioned under 7A3*b*.
6. "Mechanical Engineers' Handbook," 1916, Lionel S. Marks, Editor-in-Chief. Read Index to same for references to properties of all gases and gas equipment of all kinds, including gas engines, gasolene engines, and power plants.
7. "American Civil Engineers' Pocket Book," 1916, Mansfield Merriman, Editor-in-Chief. Read Index to same for references to information on gas, gas-producers, and gas equipment for power and other purposes.
8. "Mechanical Engineers' Pocket Book," 1916, Wm. Kent. Read Index to same and refer to Gas, Fuel-Gas, Water-Gas, Producer Gas, Illuminating Gas, Acetylene and Calcium Carbide, and other information including that on gas engines.
9. "Architects' and Builders' Pocket Book," 1916, F. E. Kidder; Thomas Nolan, Editor-in-Chief; pp. 1345–1350: Section on "Illuminating Gas and Gas-Piping" contains succinct information on five varieties of gas, namely: Coal-Gas, Water-Gas, Natural Gas, Acetylene-Gas, and Gasoline-Gas, and gives General Principles and Requirements for Piping a House, as mentioned under 7E1*c*.
10. "Lefax Data Sheets," issued under the branches Mechanical and Chemical, for extracts from articles in scientific, technical and governmental publications on the subjects covered by this heading.
11. In "I. C. S. Handbook for Plumbers and Fitters" will be found a section on Gas and Gas-Fitting which treats of the different kinds of gas, pressure, measurement of flow, meters and regulators, and gives data on piping, acetylene generators, etc., as mentioned under 7E1*d* and 7L.
12. The above Handbook is independent of four volumes on "Steam and Gas Engineering" and two volumes on "Plumbing and Gas-Fitting" in the extensive International Library of Technology, each of which treats the subject exhaustively.
13. "Universal Safety Standards" (6E3*f*), pp. 25 and 74–79, contains information on gas engines, with illustrations showing how various types of engines should be guarded.
14. N. F. P. A. "Index" (3A3*h*5) contains reference to information on "Coal-Gas," "Gas Engines for Fire Pumps Supplying High Pressure Service at Philadelphia," "Physical Properties of Gas," and references throughout to information concerning all kinds of gases, their production, and proper means to follow in installing and utilizing.
15. "Field Practice" (3A3*d*1). Chapter III on "Power Hazards" contains Section 3 on "Gas and Gasolene Engines," giving information on the installation and inspection of these devices,

pp. 77–79. Other information in this publication is elsewhere referred to, including 7L.

16. "Standard Regulations for Fire-Protection and the Safeguarding of Hazards" (3A3*a*), adopted by the N. F. P. A. and the N. B. F. U.
    (*a*) Acetylene-Gas Machines, Oxy-Acetylene Heating and Welding Apparatus and Storage of Calcium Carbide.
    (*b*) Fuel Oil, Storage and Use, and Construction and Installation of Oil-burning Equipments.
    (*c*) Gas Shut-off Valves.
    (*d*) Gasolene Vapor Gas-Lighting Machines, Lamps and Systems.
    (*e*) Internal Combustion Engines (Gas, Gasolene, Kerosene, Fuel-oil) and Coal-Gas Producers (Pressure and Suction Systems).
17. See publications of the Underwriters' Laboratories for mechanical appliances and materials inspected and labeled or approved with names of the articles and manufacturers:
    (*a*) "List of Inspected Mechanical Appliances" (3A6*b*).
    (*b*) "List of Appliances Inspected for Accident Hazard" (5G3*j*).
18. For publications relating to "Oxy-Acetylene Welding Practice," see list which can be obtained as mentioned 7A4*c*.

7H Gas Appliances in General

The appliances chiefly used in buildings, outside of the industries, will be referred to under the separate subdivisions which follow:

This main heading is provided in order to refer to a few suggestions or requirements common to the utilizations of appliances in general. These are independent of those to be covered eventually by the National Gas Safety Code, the purpose of which with respect to appliances is well set forth in paragraphs (*f*) and (*g*) under 7D1.

1. Standards along the line of manufacture and installation are being developed by a Committee of the American Gas Institute on Utilization of Gas Fuel Appliances and a Committee of the National Commercial Gas Association on Standardization of Gas Appliance Specifications, the latter of which has already issued two standard specifications elsewhere referred to. These Committees are also developing a standard for flexible gas tubing, the safe manufacture and proper precautions in the sale of which are to be greatly encouraged.
2. The Manufacturers' Section of the N. C. G. A., under its separate organization, is coöperating in the development of other standards.
3. "Utilization of Gas Appliances" (7A3*d*).
    (*a*) No. 3 Supplement.—Elementary Principles of Construction and Utilization of Energy.
    (*b*) No. 6.—Hotel and Restaurant Appliances.
    (*c*) No. 9.—Miscellaneous (Domestic) Gas Appliances.
4. Industrial Fuel Reference Books (7A3*c*).
5. The "Gas Equipment of the Home" contains several sections applicable to this subdivision. (Note the contents listed under 7A3*f*.)
6. In 5 as well as in the information referred to under 7E2*b* and some others is illustrated and described a gas receptacle the installation of which at frequent intervals makes possible the attachment and use of any desired appliance and by affording choice in the location of same subsequent to the piping gives extreme mobility to the furniture, fittings, and fixtures in any room or space.
7. "Building Code Recommended by The National Board of Fire Underwriters" (3A4*d*1), Section 260, relates to Installation of Gas Pipes and Gas Appliances and contains valuable recommendations to be followed in locating and connecting the latter.
8. The same Code on p. 175 gives recommendations for the construction and use of flues for gas-burning appliances. The important subject of flues is also treated under "Gas Equipment of the Home" and is especially covered in the publications relating to various appliances referred to under some of the subdivisions, especially 7K5*a* and *b*.
9. "Dwelling Houses" another code of the N. B. F. U. (3A4*d*3), in Section 50, contains similar recommendations.
10. Much valuable information on the subject of installations will be found in "Field Practice" published by the N. F. P. A. (3A3*d*1). Consult Index to same.
11. Other information in the publications of the N. F. P. A. may be ascertained through the "Index to Subjects" (3A3*h*5).
12. Some gas companies maintain an architects' service department, those with which the Editor is familiar being within the Consolidated Gas Company of New York, the New Haven Gas Light Company, and the United Gas Improvement Co. of Philadelphia, the latter of which distributes data sheets, of Institute standard 8½ by 11 size, intended for the files of architects. These include detailed drawings as well as other data on all kinds of appliances.

7J Space-Heating by Gas

This subject is engaging more and more attention, and developments are continually taking place. The Committee of the A.G.I. reporting in 1914 (see 7C1), referred to gas heating, especially individual space units, as in time coming into general use, which possibility it stated should have weight in arranging for gas supply at the time of erecting all buildings.

The means of accomplishment are varied, running from gas-grates, gas-logs, fireplace burners, wall-heaters, and portable heaters, to gas-fired furnaces, boilers, and radiators. The results, according to the systems used, are attained through hot air, steam or hot-water direct radiation, or hot-air radiation.

1. Reference to some of these methods is made in "Gas Equipment in the Home," 7A3 (*f*), for which read the contents there printed.
2. The Committee on the A. G. I. on Utilization of Gas Fuel Appliances made a very complete report to the 1916 Convention, which is fully printed and illustrated on pp. 956–988 of Part II of the "Proceedings," 1916, (7A2*a*). This included illustrations of various types of blue- and luminous-flame heaters, with results of tests on distribution and quantity of radiant heat, diagrammatically expressed and much data on appliances in general and on flexible tubing.
3. A committee of the N. C. G. A. exists for the investigation and development of heating by gas. This is known as the Committee on Auxiliary Heating, George S. Barrows, Chairman. This Committee at the 1916 Convention made a most interesting and very complete report, which is printed and fully illustrated in the "Proceedings" for that year (7A3*a*), pp. 330–396.
4. "Utilization of Gas Appliances" (7A3*d*), Pamphlet No. 8, entitled "House-Heating Appliances."
5. The Consolidated Gas, Electric Light and Power Co. of Baltimore has issued a 23-page booklet on various phases of this subject, entitled "House-Heating with Gas in Baltimore a Success."
6. Concerning a system of space-heating by gas see the information published in the Industrial Section by the Hugo Mfg. Company on the Hawks System, p. xi.

7K Water-Heating by Gas

1. This subject will be found treated in but few of the pocket books and handbooks referred to elsewhere. Precise information has frequently been difficult to acquire, even the manufacturers themselves not furnishing it in the form required by architects to assure in advance the most satisfactory service through the best and most economical use of each appliance. A realization of this has led some manufacturers to prepare handbooks and data sheets quite independent of the usual catalogues, and some gas companies have prepared data sheets for the especial use of architects as mentioned under 7H12.
2. This subject is, in coöperation with the Manufacturers' Section, receiving the attention of a committee in the National Commercial Gas Association on Standardization of Gas Appliance Specifications, also referred to under 7H1.
3. In "Gas Equipment of the Home," 7H3*f*, will be found (6) Water-Heating by Gas; the Most Rapid System of Heating Water.
4. Very complete information may be found in the "Lessons" referred to under 7A3*e*, which cover the subject of water-heaters, from a historical review through operation, methods of use, principles

of water circulation, sizes of heaters, connections and flues, to care, efficiency, and maintenance.

(*a*) Lesson No. 3, 1916, is entitled "Water-Heating—Circulating Types."

(*b*) Lesson No. 10, 1916, is entitled "Water-Heating—Automatic Types."

5. For most complete and exhaustive data on water-heaters in general, see the series of pamphlets 7A3*d* "Utilization of Gas Appliances." These are fully illustrated and contain diagrams, tables, calculations, descriptions, and recommendations of the greatest usefulness.

(*a*) No. 4 is entitled "Circulating Water-Heaters for Domestic Purposes," and is divided into sections on: Evolution of the Heater; Combustion; Efficiency; Water-Circulation; Types of Circulating Water-Heater; Combination Boiler and Gas Water-Heater; Gas-Cock; Flues; Boilers and Connections; Causes of Rusty Water; Comparison with other methods of Heating Water; Comparative Costs—Coal and Gas; A Practical Method of Making Efficiency Tests.

(*b*) No. 5 is Entitled "Instantaneous Automatic Water-Heaters; Multi-Coil Storage Systems and Instantaneous Bath-Water Heaters" and is divided as follows:

1. Historical Review.
2. Construction: Gas burners, heating surfaces, shell, water-valve, gas-valves, thermostat, draft-hood.
3. Operation.
4. Installation: Flue conditions, water and gas supply, location, reheating or supplementary system, installation specifications, drawings and data.
5. Care and Maintenance.
6. Selection of type and size; special uses.
7. Comparative costs of gas and coal.

6. For informative data on gas water-heaters see the pp. XII-XIII in the Industrial Section, of the Humphrey Co., division of Ruud Mfg. Co., also, see various catalogues of the Humphrey Co., and the very complete Handbook of the Ruud Manufacturing Co., entitled Gas Water Heaters, copyright 1915.

7L Cooking and Hotel and Domestic Appliances

Aside from the illustrated literature of the gas associations and companies, the publications in connection with gas for cooking and other domestic conveniences are chiefly those of the manufacturers of the appliances, whether they be used for home, hotel or laundry—club, cantonment or other permanent or temporary use. There will, however, frequently be found articles of suggestive value and usefulness in the many periodicals, lists of which have been mentioned, and in the many popular magazines.

1. Attention is directed to the Section on Gas Appliances in General and to the work of the Committees on Standardization of Gas Appliance Specifications referred to therein under 7H1.
2. The Gas Equipment of the Home (7A3*f*) takes up the use of gas for cooking and for other forms of domestic utilization separately. It shows the plan of an "Ideal Kitchen" and contains illustrations and suggestions relating to the manifold uses of gas throughout the home, treats of hoods and canopies and other accessories and contains subdivisions which cannot be fully described in the contents listed. It also mentions Domestic Science Equipment in Schools.
3. Under the "Lessons" referred to in 7A3*e* are those relating to various domestic equipments.
4. See especially "Utilization of Gas Appliances" (7A3*d*).
   (*a*) No. 1, is entitled "Domestic Cooking Appliances."
   (*b*) No. 6 is entitled "Hotel and Restaurant Equipment."
5. See also the very complete Industrial Fuel Reference Book (7A3*c*) No. 6, which is entitled "The Application of Gas to Hotel and Restaurant Equipment."
6. See article on "How to Secure All-Gas Kitchens in old Houses" by H. K. Dodson, reprinted from "Proceedings" of the N. C. G. A.
7. See the sections of Field Practice (mentioned under 7H) applicable to the installation of the appliances alluded to under this subdivision.
8. Building Code recommended by the National Board of Fire Underwriters (3A3*d*1) has a Section No. 260 relating to installations of gas-pipes and appliances and contains recommendations to be followed in installing various domestic appliances.
9. "Dwelling Houses," another Code by the N. B. F. U. (3A3*d*4) in Section 50, contains similar recommendations.
10. See publications of Underwriters' Laboratories referred to under 7G17.
11. Read paragraphs (*f*) and (*g*) of 7D1 describing the proposed National Gas Safety Code.
12. Of interest as affording the standards to be followed in manufacture, see Standard Gas Range Specifications adopted by the National Commercial Gas Association, 1914.

7M Illumination—Fixtures, Equipment and Ignition

On the general subject of illumination and the modern science of illuminating engineering read the interesting account of the Illuminating Engineering Society under 7N1 prepared for the Journal through the courtesy of Wm. J. Serrill, President.

See, also, the various publications referred to under 6H, most of which treat of illumination by gas as well as by electricity.

1. No more fitting introduction to the subject of illumination by gas could be printed than the following excerpts from the Report of the Committee of the American Gas Institute referred to under 7A2*k* as they treat of developments in fixtures, mantles, and ignition to suit all modern requirements.

(*a*)

"With the latest developments in both inverted and upright incandescent mantle burners, gas can be applied to all forms of illumination—direct, semi-indirect, or indirect. These units, made in several sizes, giving a light from the smallest intensity commercially used to a light of as high intensity as needed for any indoor work, with the great variety of glassware which it is possible to use, are made up in fixtures varying from the plain, simple, inornate fixture suitable for purely commercial lighting, to the rich, heavily ornamented fixture for use in the handsomest surroundings."

"This is not only true of the direct lighting units but especially true of the semi-indirect units where we find gas peculiarly adapted for use with the large variety of beautiful glassware that has been developed for this system of illumination. This attractiveness applies equally well to the numberless portable lamps with their rich shades of many styles and designs, suitable for the living-room, library, bedroom, den or boudoir."

(*b*) *Ignition.*

"Directly connected with the consideration of appearance comes the question of flexibility. Gas units are now placed on the market in varying sizes. Allied closely with this question of flexibility comes that of control of the units themselves. This means the method of lighting and extinguishing. Before the advent of the incandescent mantle light, gas-lighting usually required the use of matches and the manual lighting of each and every lamp."

"Simultaneously with the development of the mantle unit, however, came the invention of several methods for lighting and extinguishing lamps, and several methods of control, from a distance, until at the present time no installation can lay any claim to being modern or complete that requires the use of matches for ignition. We now have available these distance-control systems, and also local control, with single pendent switch or chain, similar in all respects to the electric local control. Here the ignition is accomplished by a pilot light. This system has been in operation for many years and gives entire satisfaction.

(*c*) *Distance Control.*

From the many distance-control systems available, there are several which have been used in actual service and have proved reliable and dependable. These are the magnet cock with pilot ignition, the magnet cock with jump-spark ignition, a system using the gas pressure for control and igniting by pilot light, and the hot-wire, or filament, ignition in combination with the magnet cock. In actual operation in various installations these have given satisfactory service. Gas, therefore, has all the features of convenience of any of the commercial illuminants. (In the Appendix, Section D of the Report (7A2*k*) will be found a short description of each of these systems with diagrams indicating their method of operation.)

2. See "Architects' & Builders' Pocket Book," 1916, F. E. Kidder, pp. 1351-1370: Section on "Lighting and Illumination of

Buildings," by W. H. Timbie, contains portion devoted to Illumination of Gas and gives general information, tables, and diagrams; Table V, being a chart of "Standard Symbols for Gas-Piping Plans" as developed by the Illuminating Engineering Laboratories of the Welsbach Company.

3. For a list of "Reference Books on Illumination," including those of some manufacturers, see p. 1370 of Kidder's "Pocket Book."
4. "Mechanical Equipment of Federal Buildings" (6L1*g*), Chapter VII, "Lighting Fixtures." This gives "Basic Data in Connection with Design and Installation of Lighting Fixtures" and data for estimating the cost of same. It also includes a "typical lighting fixture specification prepared by the office," which covers various types of fixtures, glassware, reflectors, metals, gas-piping, and finish, and gives a schedule of fixtures and notes on inspection and tests.
5. In the "I. C. S. Handbook for Plumber and Fitters" is a section on gas-fitting in which are given data on illumination and piping, including piping for acetylene gas-lighting with the requirements of the New York Board of Fire Underwriters for the installation of acetylene–gas generators and recommendations as to the location of gas fixtures. The subject of "electric gas lighting" is also covered.
6. "Residence Lighting," by W. A. Morris. A 14-page illustrated booklet which contains information on what constitutes satisfactory domestic lighting for the various rooms of the average residence and what units are available.
7. "Some Phases of the Illumination of Interiors," by Preston S. Millar. A paper and demonstration presented at the eighth annual meeting of the American Gas Institute (joint session I. E.S. and A.G.I.), October, 1913. Treats of "Lighting Effects." 28 pp., illustrated. (Printed in "Transactions" of I.E.S., Vol. VIII, p. 99, 7A1*a*.)
8. See pamphlets of the National Commercial Gas Association "Utilization of Gas Appliances," 7A3*d*.
   (*a*) No. 2 is entitled "The Production of Light."
   (*b*) No. 3 is entitled "Planning Lighting Installations."
9. "Gas—The Modern Home Light," 1916. 34-page illustrated booklet issued by the N.C.G.A. (7A3*g*), being a guide in selecting gas-lighting for each room. Contains "Ten Rules of Gas Light."
10. "The Gas Equipment of the Home." Various sections described in the contents given under 7A3*f*.
11. "The Hygienic Value of Gas Lighting," by R. F. Pierce. 20-page booklet reprinted from the *Illuminating Engineer;* treats of the beneficial effect of gas light upon the air, and its hygienic effect upon the eyes.
12. "Gas Lights for all Purposes." 63-page illustrated booklet issued by the United Gas Improvement Company of Philadelphia; illustrates and gives cost data on direct and indirect lighting fixtures of every description, portable lamps and floor standards, as well as mantles and glassware for lighting fixtures.
13. "Mechanical Engineers' Pocket Book," 1916, William Kent, pp. 1468–1477: Section on "Illumination–Electric and Gas Lighting" contains general information and tables in connection with the use of gas for lighting purposes.
14. "Crosby-Fiske-Foster Handbook of Fire Protection" (fifth edition), pp. 122–126: Section on "Lighting" contains recommendations covering illumination by various kinds of gas.
15. For specific information in relation to the use of acetylene gas for illumination see publications of the International Acetylene Association and list referred to under 7A4*a*.
16. In "Mechanical Engineers' Handbook," by Lionel S. Marks, the section on "Prevention of Accidents" by D. S. Beyer contains a division on "Lighting," which treats of the importance of adequate lighting in relation to the prevention of accidents.
17. The Committee of the National Commercial Gas Association on Standardization of Gas Appliance Specifications (7H1) developed:
   (*a*) Standard Gas Fixture Specification (7A3*g*) which was adopted by the Association, December, 1914.
18. "Field Practice," Inspection Manual of the N.F.P.A., 1914, pp. 23–32, contains sections on "Lighting Hazards" with subdivisions on "Gas: Public Supply, Artificial and Natural," "Acetylene Gas," "Compressed or Liquid Gases," "Kerosene and Kerosene Vapor," "Gasolene Vapor."
   These give succinctly the processes of manufacture, applications for use and observations relating to installations and maintenance which should receive attention.
19. N.F.P.A. "Index" (3A3*h*5) contains reference to information on "Illuminating Gas," Gas Arc Lamps," "Gas Mantles," and other subjects of interest indicated by the contents.
20. See the two Codes of the National Board of Fire Underwriters—the Sections referred to under 7E2*c*1 and 2 contain recommendations also as to location and kind of gas fixtures.
21. Read paragraphs (*f*) and (*g*) under 7D1 relating to the proposed National Gas Safety Code.
22. Standard Regulations for Fire Protection and the Safeguarding of Hazards (3A3*a*) adopted by the N.F.P.A. and the N.B.F.U., obtain with respect to generators for independent lighting systems, as follows:
   (*a*) "Acetylene-Gas Machines, Oxy-Acetylene Heating and Welding Apparatus and Storage of Calcium Carbide" (7G16*a*).
   (*b*) "Gasolene Vapor Gas Lighting Machines, Lamps and Systems" (7G16*d*).

7N Illumination in General

7N1 *Illuminating Engineering Society.*

General Secretary, G. H. Stickney, 29 W. 39th Street, New York City.

[EDITOR'S NOTE.—The activities of this Society are concerned with all forms of illumination whether artificial or daylight.]

Public Information:

(*a*) Publication of a periodical called the "Transactions," in which are printed papers dealing with all phases of the art and science of illumination.

The "Transactions" are free to all members. To other individuals, $5 per year; to libraries, $4; foreign subscriptions, 50 cents additional.

Single copies of current numbers, 55 cents to members and 75 cents to others. The Society will be glad to furnish sample copies, if available, to practising architects.

(*b*) Publication of special pamphlets dealing with the particular phases of illumination. Among these may be mentioned the pamphlets entitled "Light: Its Use and Misuse," a "Code of Lighting Factories, Mills and Other Work Places," and a number of reports of committees of the Society.

(*c*) The conducting in the year 1910 of an elaborate lecture course on illuminating engineering, jointly with the Johns Hopkins University, and the subsequent publication of reprints of the lectures. At the present time there is in course of publication a similar volume dealing with a second course of lectures on illuminating engineering jointly conducted in the year 1917 by the Society and the University of Pennsylvania. This treatise, the latest word on illuminating engineering, will be available after July 1.

(*d*) A committee has completed popular lectures on "Store Lighting" and "Residence Lighting" with accompanying lantern-slides. It is proposed to circulate these lectures among those who wish to present them before organizations interested in these phases of lighting. Three other lectures—on industrial lighting, office lighting, and elementary principles of lighting—are in course of preparation.

The Illuminating Engineering Society was organized in the year 1906 by a group of engineers in New York City who were interested in the subject of illumination.

At that date the profession of illuminating engineering was in its infancy. While the principles of light distribution, as a branch of physics, had been published, but little progress had been made in translating those principles into practice.

The public had not been educated so as to create a demand for proper illumination, and the manufacturers of lighting equipment, in the absence of such a demand, were groping in the dark as to the proper character of their equipment. The knowledge that there were such things as bad lighting, which is harmful to the eyes, and good lighting, which is not only harmless but a factor in conserving eyesight, was not widespread. That illumination is a factor in interior decoration and possesses a distinct esthetic value practically entered not into the conception of architects and interior decorators. That illumination is an important element in workshops, by increasing output, by reducing accidents, and by bettering the morals of workers, was not generally realized.

During the ten years of its existence the Illuminating Engineering Society has wrought a wonderful change in the conditions of lighting. A formless mass of principles, theories, and practices has been coördinated so as to constitute a definite branch of engineering; questions of nomenclature and standards, which form the basis of any orderly engineering practice, have been solved and standardized; researches in the domains of both physics and physiology have been fruitfully stimulated; educational courses have been inaugurated; legislation has been, and is now actively being, guided along intelligent lines.

To the home-lover it has been shown that his evenings may be made more cheerful through proper lighting. Conservation of eyesight, increased decorative value of furnishings, an atmosphere of hospitality and warmth are among the things that good illumination secures. The lighting of work places—offices, stores and factories—has been improved, and the advantages of correct illumination have been demonstrated. Increased output, welfare of the worker, and a general betterment of the morals of the employees has resulted. Public halls, theatres, auditoriums, churches and all meeting-places required interior illumination—natural and artificial—which would give an atmosphere appropriate to the functions of the place, as well as the necessary illumination. Highway illumination demands more than the ability to see an approaching vehicle or pedestrian. The contour and architectural features of buildings may be so lighted that their esthetic value is retained during the hours of darkness. The parking and landscapes adjacent to the roadway may be seen by night as well as by day. Municipalities have been thus encouraged to improve the grounds surrounding public buildings and adjacent to highways. Studios, museums, and galleries of art afford a field for the development of illumination which is destined to awake a new enthusiasm in the artist and a new appreciation in the connoisseur. Intensity, color, and direction of light may be adjusted to give the effects which are so necessary to this class of illumination. The architect and artist need no longer leave out fine shades of color and delicate contours because of inadequate lighting.

With all these lines of endeavor clearly defined, the Society organized its members, sections, and committees. It received the hearty coöperation of the scientist, manufacturer, the fixture designer, and the gas and electric central station men. The coöperation of all users was represented in the demand for improved installations. Many other professions became interested and offered support to the movement—the architect, ophthalmologist, optician, and those interested in civic and municipal improvements.

During nearly eleven years of activity the Society has aided materially in the present high development of lighting. The indirect and semi-indirect systems of illumination, the use of "daylight" illuminants and special color devices, the effective distribution of light from the modern lamps and shades, the development of flood-lighting and spectacular illumination are some of the things fostered by the Society. It should be emphasized that the Society stands for illumination and is strictly neutral and impartial as between the various artificial illuminants.

Among important investigations carried on by technical committees of the Society may be mentioned those of the Committees on Nomenclature and Standards, Glare, Research, Lighting Legislation and Education.

Through the coöperation of the Committee on Lighting Legislation, modeled on a code prepared by this Committee, several states have enacted legislation on this subject.

At the present time the Society has committees preparing reports on the following subjects: Automobile Headlamps, Railway Vehicle Headlamps, Street Lighting, Diffusing Media, School Lighting, Lectures to Architectural Students.

There are five sectional organizations of the Society. These sections hold regular meetings in their respective localities—New York, Philadelphia, Pittsburgh, New England, and Chicago. The membership of the Society numbers 1,300.

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